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REVIEWS

	<i>Page</i>
ASCOLI, F. D. <i>Early Revenue History of Bengal</i> ...	286
BALKRISHNA. <i>Industrial Decline in India</i> ...	285
BANERJEA, PRAMATHANATH. <i>Public Administration in Ancient India.</i> By L. F. Rushbrook Williams ...	121
BHIMPURE, V. L. VAJPAYEE, <i>Circles and Recipes in Economics</i> ...	120
CALVERT, H. <i>The Law and Principles of Co-operation in India</i> ...	114
EDGEWORTH, F. Y. <i>The Cost of War</i> ...	136
FINANCE DEPARTMENT. <i>Financial Statement and Budget (1918-19.)</i> ...	293
GEDDES, PATRICK. <i>Town Planning towards City Development. (A Report on Indore)</i> ...	428
HOBSON, J. A. <i>The New Protectionism</i> ...	134
Indian Industrial Commission [1916-18], <i>Report of the.</i> By H. S. Jevons ...	434
JACK, J. C. <i>The Economic Life of a Bengal District,</i> By T. T. Williams ...	105
JAPAN, <i>Sixteenth Financial and Economic Annual of</i> ...	128
JHERIA MINES. <i>Board of Health, the Year Book of, for 1918</i> ...	422
KALE, V. G. <i>Introduction to the Study of Economics.</i> By H. S. Jevons ...	423
MANN, H. H. <i>Life and Labor in a Deccan Village.</i> By E. A. Horne ...	281
MUKHERJI, P. <i>The Co-operative Movement in India</i> ...	117
MUKERJEA, RADHAKAMAL. <i>The Foundations of Indian Economics.</i> By H. S. Jevons ...	417
O'HARA, FRANK. <i>Introduction to Economics</i> ...	127
PATNA COLLEGE. <i>Chanakya Society, Seventh Annual Report of</i> ...	291
PROCEEDINGS of the Board of Agriculture held in Pusa, December, 1917 ...	439
PUSA. <i>Report of the Agricultural Institute and College</i> ...	125
RAM, GANGA. <i>The Agricultural Problems of India</i> ...	287
STATISTICS. Department of—	
——, <i>Review of the Trade of India in 1915-16.</i> By H. S. Jevons ...	123
——, <i>Review of the Trade of India in 1916-17</i> ...	293
STAMP, J. C. <i>British Incomes and Property.</i> By T. T. Williams ...	295

SHAH, K. T. <i>The Governance of India.</i> By P. Mukherji ...	420
SMITH, SWIRE (SIR). <i>The Real German Rivalry : Yesterday, Today, Tomorrow</i>	133
UNITED PROVINCES. <i>Third Wage Census of, (taken August 1917).</i>	294
WATTAL, P. K. <i>The Population Problem in India.</i> By H. S. Jevons	114

CURRENT NOTES AND MISCELLANEOUS

<i>Current Notes</i> . . .	101, 277, 114
<i>Financial Statistics</i>	137, 296, 111
<i>Principal Contents of Foreign Journals</i> ..	139, 300, 113
<i>Books Received</i>	143, 301, 117
<i>Proceedings of the Bombay Conference</i> ..	... .. 689

INDIAN JOURNAL OF ECONOMICS

CONTENTS

VOLUME II

ORIGINAL ARTICLES

	<i>Page</i>
AIYANGAR, K. V. R.	Fuel Economy 650
ANSTEY, PERCY	Address of Welcome 449
BALKRISHNA	Economics in Ancient India 629
BARKER, D. A.	The Relation Between Interest and Discount 87
BASU, P. C.	The Earliest Agricultural Organisation in India 609
BOSE, P. C.	The Rural Life of Chota- nagpur 551
CALVERT, H.	The Price of Land in the Punjab 389
COYAJEE, J. C.	Lines of Co-operative Pro- gress 489
EWBANK, R. B.	The Co-operative Movement and the Present Famine 477
GEDDES, PATRICK	The University Militant 81
HINTON, W. J.	A Note on Some Anomalies in the Currency of Hong- kong 372
JEVONS, H. STANLEY	The Art of Economic Development Part, I 1

JEVONS, H. STANLEY	Higher Economics Courses	
	II. Allahabad University	95
Do.	The Art of Economic	
	Development (continued)	231
Do.	The Art of Economic	
	Development (continued)	329
Do.	Finance of Economic	
	Development	564
KALE, V. G.	A Study in Village Economics	462
KEATINGE, G. F.	Size of Land Holdings in the Bombay Presidency	180
LYONS, H. W.	Relations of Economics	
	Departments to Indian Economic Problems	539
MOLONY, E. A.	A Vignette from Peter Mundy	158
Do.	Economy of Irrigation Water	520
MANN, HAROLD H.	Efficiency of Agricultural Labor	456
MEHTA, NANALAL C.	Practice of Co-operation	361
O'BYRNE, G. J. E.	The Relative Prices of Food Grains	400
OFFICIAL, SOURCES	An Australian Irrigation Scheme	265
PAGAR, S. M.	The Indian Income Tax	305
REDDY, V. E. S.	Distribution of Agricultural Holdings	522
SLATER, GILBERT	The Study of Rural Econo- mies in South India	65
Do:	Higher Economics Courses	
	I. Madras University	92
Do.	South Indian Economics	145
SRIVASTAVA, J. P.	Labor Supply from Districts near Allahabad	676
THOMPSON, C. D.	Modern Mercantilism in India	507
VENKATESWARA, S. V.	Mughal Currency and Coinage	169

INDIAN JOURNAL OF ECONOMICS

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THE ART OF ECONOMIC DEVELOPMENT¹

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I.—INTRODUCTION¹

The development of the economic resources of a country is a familiar idea, connoting the discovery and mining of its mineral wealth, the improvement of agriculture, and the construction of railways, docks, and so forth. Development, understood in this sense, has been proceeding apace during the past hundred years, first in England, France and Holland; then in North America, and in the rest of Europe; and later in India, Australia, Africa, South America and Japan. The past few years have seen the commencement of the same process in Asia Minor and in the thickly populated territories of China. Yet all this enormous investment of capital, this revolution in the material environment of life, is undertaken with hardly any kind of guiding principle other than the business man's quest of profits or the State's desire to benefit its people. There is no definite conception of the objects

¹ A summary contents of the whole of this article will be found at the end, see p. 63.

aimed at; nor of any orderly sequence of works and measures such as might be designed to secure a maximum of ultimate advantage at the minimum of cost, and at the same time distributing burden and advantage fairly between the present and future generations. Yet geographical knowledge and economic theory have now advanced to the stage which makes it possible to devise such a sequence. Instead of every project for a new railway, or for more roads, being considered by itself and on its own merits alone, as is the usual practice, it is clearly shown by economic theory that such projects should be treated as parts of a comprehensive scheme of development of the whole region, and be judged accordingly.

This new point of view opens up an entrancing vista of possibilities. The best alignment of roads, railways and canals will be determined *ab initio* on geographico-economic principles; the most advantageous order in which their construction should be undertaken will be known; the most profitable time of starting, and speed of completion of each work, will be determinable according to the funds available. If different agencies—the State, local authorities and private companies—are all to take part in the development scheme, each company or authority will find ready for it in the general program a work within its sphere or capacity, which it may take up under the general direction and control of the State. By thus co-ordinating in their conception and planning all works of public utility within a wide region there will be a vast increase of their efficiency.

The earning capacity of every kind of work, whether it be a railway, canal, or electric supply, depends in large measure on the effectiveness of the services being rendered to the community by other works of public utility. A railway company can do little or nothing to secure the making of roads or irrigation canals, or to

promote agricultural instruction and credit facilities, in the districts it serves. Yet these correlative works and measures, if undertaken simultaneously with the building of a projected railway, would often change it from a bad speculation to a certainly profitable investment. But the same is true of the roads, the irrigation canal, and the agricultural instruction—each one is comparatively ineffective without the services of the other. In simple terms when all these measures are considered together: $2+2+2+2$ does not make 8, but 18 or 20.

It will be observed, therefore, that by a proper co-ordination of different measures for developing a tract of country, not only may the risk of undue delay in earning interest be eliminated, but schemes may thus become profitable which could not be so otherwise until the slow changes of a generation or two should have increased the numbers or standard of living of the population. By means of a co-ordinated program, however, the development of a country may proceed far more rapidly and safely than by the present haphazard way of independent undertakings.

The economic development of any tract of country is, therefore, properly speaking in the first place a problem of applied economics. The first stage is to prepare a program, *i.e.*, to decide on the proper order of construction of the various works needed, such as railways, roads, canals, drains, markets, schools, etc., and their mutual relations to one another so that each may be of the greatest utility. The second stage is to call in the engineers and determine the cost of the various proposed works, the rate of return which they promise, and the time which would be needed for their completion. The third stage is the work of the financier to provide the ways and means. He has to investigate what funds may be available, and to what extent borrowing can be resorted to. He

must then discuss with the economist and the engineer the effects of suggested variations or curtailments of the original program with a view to deciding what proposed reductions or economies, if some be necessary, can be effected with the least sacrifice of utility. In all this re-adjustment to bring the program within practicable limits the problem of how to obtain the maximum advantage from the capital available for outlay is essentially one involving economic principles, as well as the principles of sound finance. Even these latter are not sufficiently widely understood, and a proper formulation of financial principles in relation to development is badly needed. If rightly applied, these principles will enable the State and the promoters of public utility undertakings to avoid errors which are only too common in both directions—I mean, on the one hand unremunerative outlay of capital, and on the other hand that excessive caution, which often means loss of opportunities and consequent stagnation, and is due to want of confidence through having an insufficient knowledge of the fundamental principles of economics and finance.

So far as is possible within a brief article, I proceed now to enumerate and explain the chief principles applicable to developing a country. They fall conveniently into five groups. The first group to be recognized is of a geographic and demographic character, and concerns mainly the close relation existing between the activities of the people inhabiting any territory and the geographical configuration of the latter. The second group contains the economic-geographic principles relating to trade between different places, and to transportation of commodities; the third group is that of the purely economic principles of consumption and production; the fourth group contains the principles of finance; and the fifth group consists

of the social and legal principles involved. It would need a series of volumes on geography, international trade, economic theory, and on sociology, ethics and political theory, public and private finance, equity and jurisprudence, fully to state and explain all the principles which have to be taken into account—in fact they are practically co-terminous with the scope of the respective sciences I have named. It will be possible only for me to indicate those principles which are of most vital importance in practically all the problems connected with development. The actual problem of the development of a special region may well require the knowledge and application of other and less widely known laws of the sciences concerned.

II. GEOGRAPHICAL AND DEMOGRAPHICAL PRINCIPLES

1. *Necessity for Geographical Knowledge.*—Geographical principles do not at first sight appear to have a close bearing on economic development, and they are usually left out of account; but this would be a serious mistake in the preparation of any comprehensive and orderly program of development. Geography is the science describing the surface features of the earth and their relation to climate, and the effects of both on the distribution of man and of animal and vegetable life. Demography is the detailed study of the distribution of mankind as to density of population, races, religions, occupations and so forth, most of its information being provided by the census. A thorough knowledge of geographical principles, and a close study of the geography and demography of any area to be developed is absolutely essential, as a preliminary to a consideration of proposed measures of development.

2. *Geographical Units.*—Any extensive territory falls naturally into geographical units, the recognition

of which is of the first importance. There are units of three classes: (1) complete river-basins, (2) portions of river-basins, (3) plateaux, or portions of mountain masses. The larger the river basin under consideration, the greater the importance of its sub-divisions as units. For example, the Tapti River basin might be treated as falling into three units—the main valley and its two upper limbs; the Mahanadi into four units—the fan or cirque of the upper tributaries of each of the two important branches, the main valley, and the delta. In the Ganges valley quite a number of units may be recognized: the mountains, foot hills, the submontane tract (*terai*), the Great Doab, Bundelkhand, Ganges-Sarda-Gogra Doab, Bihar Highlands, Central India Plateau, and so forth. Similarly we find well marked geographical units in other countries, *e.g.*, in Great Britain where we distinguish the Thames basin, the Weald of Kent, South Coast, Devon and Cornwall Peninsula, South Wales, Midlands, Lancashire-Cheshire plain, Ayrshire, Firths of Clyde and Forth, Fifeshire, etc.

3. *Density of Population, Occupations and Racial Characters.*—If the watersheds are in strong relief the population will be concentrated mainly in the valley bottoms and lower slopes, these providing the fertile lands and the sites favourable to the growth of towns; and it must continue to be so concentrated, excepting only where mineral wealth is discovered and developed. The occupational distribution is broadly as follows. The higher mountain regions are inhabited by bold and hardy tribes who gain their living by hunting and pasturing sheep, goats, etc., and sometimes by marauding. On the upper slopes a rough cultivation provides a bare subsistence, and but little more, for a rough and hardy people, and others get their living from the forests. In the rolling country usually

characterizing the lower slopes we find the land fully settled with a cultivating community, often also breeding horses and cattle, and marketing the surplus produce and stock. The people are of a more mixed origin, and are not so simple in thought and customs as those of the higher slopes. In the alluvial plains, which, if well watered, are generally very fertile, we find commercial farming highly developed if there are adequate communications, and here, on the great highways, flourish the trades and the big towns. Down near to the sea, the rivers become an important means of transport, and many people gain their livelihood by the rivers and canals. On the sea coast we have the great ports, and a hardy race of fishermen who make fine sailors even on our great steamers. In a hundred ways such as this is the population sorted out, according as the physical characters of the country prescribe the principal means of livelihood of the people.

III. GEOGRAPHICO-ECONOMIC PRINCIPLES

1. *Varying Distribution of Natural Resources and Cultivated Products.*—Trade between distant localities exists because of the varying distribution of natural products over the earth's surface, and because the opportunities and customs of producing cultivated and manufactured commodities vary in distribution in the same way. Here it is only necessary to call attention to certain broad generalizations which can be made concerning this distribution, and from which we may forecast the natural tendency of economic development in any district. We know, for example, that both minerals and forest products occur mostly in mountainous and hilly country, whilst agriculture flourishes in the plains, and manufacture at geographically important points in the plains, in some places deter-

mined by water transport, in others by the meeting of great road or railway routes. Thus there must always arise a trade between the mountainous districts and the valley bottoms. Further, as climate changes according to latitude, both the natural vegetable and animal products, and the still more important commodities of cultivation must vary so much over any lengthy north and south trade route that a considerable trade must arise. Again we have desert regions in the arid zones of continents, in the interior and on the western coast, and a moist climate in the tropics and along the coastal strip; so there is interchange of products between the dry and moist areas. Again the sources of power are localized and determine the location of industries present and future, at points on exit routes from the coalfields, and in the belt where the mountains abut on the plains and hydro-electric power is cheapest.

2. *Potential Resources*.—In estimating the future economic possibilities of a territory with a view to drawing up a program for development works, it is obviously important to take account of its potential resources. There may be much waste land with a good soil perfectly capable of profitable cultivation if adequate communications and security of property be established. There may be great stretches of land which would become fertile if irrigated, and for which it can be shown that water can be provided; or a hilly region, now producing little or nothing, may be shown to be suitable for afforestation, fruit-growing, or for sheep-running. There are very few types of country except precipitous mountains and salt marshes, that cannot be devoted to some useful purpose, if water can be made available; the questions will be—the kinds and quantity of produce to be expected, the works needed to raise and market it, and the

density of population that will be supported, and whence its immigration is to be arranged.

3. *Natural Trade Routes*.—Merchants having to convey goods from place to place naturally choose the cheapest route. In former times this meant by water where it was available. By land it meant seeking the most conveniently accessible point on an accustomed line of travel—a caravan route or great through road. Such routes or roads became great channels of trade, because they had been chosen with a view to avoiding natural obstacles and risks from highway robbers and dacoits. The chief natural obstacles are mountains and rivers, marshes and thick belts of forest. Trade routes have tended always to converge on places where an obstacle is most easily passed, as for example on passes across mountain ranges, on fords of rivers, or on the head of a lake, estuary or marsh. These, and the transshipment stations from land to water-carriage, have from time immemorial been converging points of trade and have often grown into towns of considerable importance.

The building of railways has in most countries greatly altered the trade routes, particularly the minor ones—not so much the great routes. The latter have often been followed by the railways either on account of existing big towns, or because great natural obstacles affect a railway as much, or more than a road. Thus railways utilize passes over mountain ranges, and broad valleys through hilly country, just as much as roads; and easy bridging points on great rivers are often the same, or close to the old fords, or ferries. On the other hand it is true that communications are less and less controlled by physical features, as population increases. Very costly railway works can then be profitably undertaken, or are required for strategic purposes, as, for example, the three great Trans-Alpine railways, and

those climbing the sierras and the Andes in South America.¹

In planning the economic development of a territory the old and existing trade routes should be ascertained and due weight (though it may not be great weight) should be given to the following considerations: (1) certain market towns will have sprung up on the old land and water routes; and these should so far as possible be made junction points on the railways, or converging points of the important roads with the railway, so as to utilize existing marketing facilities and trade capital instead of more or less completely destroying them and having to build afresh elsewhere.² (2) The capital invested in the old land or water carrying trade will seek continued profitable use and may prove a serious competitor with the railway for the first few years of its existence unless some other profitable use be provided for it. This is best done by having new main roads made to converge from a distance on the proper points on the railway, so that existing vehicles and animals can find a profitable trade in feeding the railway with traffic instead of competing with it. Such new main roads will develop a traffic which may after ten or fifteen years justify the construction of a branch line. This principle has been much neglected in India. (3) It will be found, as a general rule, that railways can more profitably follow existing trade routes, than strike off across country, except as noted in the next section. They may, however, cut off corners.

4. *Ocean Routes and through Land Routes.*—The principles noted in the foregoing section are almost

¹ See W. S. Barclay, *Geography of S. American Railways*; *Geograph. Journ.* Vol. XLIX (1917), p. 163.

² At the same time cases may occur in which it is desirable to build again owing to the insanitary and tumble-down condition of an old city. In this case I think it best that a new city should be planned and built on a site a mile or two removed from the existing city. When the traders and population have largely transferred themselves to the new city, the old one can be pulled down and rebuilt so far as appears desirable.

equally applicable, whatever the size or importance of the old trade route, or of the railway to be constructed. We must now see that trade routes must be graded in importance; that the more important a route is in length and in volume of traffic the more does its location have a determining effect upon the lesser trade routes of the territories it traverses.

A close analogy might be drawn with a great river and its tributaries. The alignment of the great trade routes is determined by the principal physical features of a continent—its mountain chains and the passes across them, and its great rivers—and by the situation of the largest and safest harbors. The great traffic routes across any section of a continent may, therefore, be determined by physical features far beyond its boundaries. In considering transportation problems, it is necessary, therefore, first of all to consider the country as a whole, and then to take account of the existing and possible ports in their relation to the great ocean highways of the world. From these considerations it will be possible to map out the great through lines of land communication, which in these days mean the great trunk railway lines. The great trans-continental lines will follow the shortest or easiest routes for connecting the thickly populated areas of the continent, some divergence being caused, however, if political considerations so dictate. The trans-continental routes will generally terminate in ports; but this is because any railway line will always be constructed so as to be used for as many purposes as possible, and a share in the ocean-going traffic is valuable. The second class of through routes consists of those dictated by the situation of the great producing districts of the interior relatively to the most convenient and safe ports on the coastline. Four factors influence the growth of a port: (1) Its physical configuration being such as to

provide adequate accommodation and shelter for the largest vessels. (2) The extent to which it has been improved by moles, wharves, warehouses, etc. (3) The accessibility and productivity of the hinterland. (4) Its proximity to the great ocean highways, which are themselves determined by the configuration of the continents and by such works as the Suez and Panama Canals. All we are concerned with at the moment is the accessibility of a productive hinterland to its port. Granted that the other conditions are favorable to the growth of a port, a demand comes into existence for means of transport from long distances inland to this port. Usually there must be several main lines converging on a port, and the precise alignment of these will be determined by the location of the most productive districts and by the main physical features.

In Europe and North America the through lines of communication of both the above classes are fairly well developed; but in India, as in Australia and in most of South America, they are but very partially developed or even understood. Yet it will be possible by sufficient study to forecast the alignment of these great through roads; and to do so is highly important because of the close connection which the local communications of any district ought to have with any through routes near to or traversing the district, and because the branch lines and roads sometimes have to be constructed before the through line. The branch line railways and local through connecting lines, and feeder roads, should spread out over any geographical unit of territory branching away from the main through connection somewhat in the way that the veins of a leaf branch out from the mid-rib and cover the whole surface of the leaf with ever smaller and smaller veins.

Taking the special case of India, we may consider for a moment the alignment of some of the principal through routes. The trans-continental through routes are not at present developed, but their location may be inferred from certain well known geographical facts, and these I have indicated tentatively with the broken lines upon the outline map inserted overleaf. The principal route affecting India is the proposed southern Trans-Asiatic line connecting South China and India directly with Europe, by way of Karachi, the northern coastline of the Arabian Sea, through Bagdad and Constantinople. It was argued by Mr. G. S. A. Mathers in an article in this Journal,¹ that this railway would be able to compete with sea-carriage for the larger part of the goods requiring to be transported from the inland parts of Southern China to Central and Western Europe. Except for goods to be consumed at or near the coasts, sea-carriage has the disadvantage of involving a back-carriage by land. The route proposed by Mr. Mathers across India is through Saidya, (in Upper Assam), Gauhati, Katihar, Mokameh Ghat, Moghal Serai, Naini Junction near Allahabad, Katni, Bina, Kotah, Marwar, and Hyderabad (Sind) to Karachi. He proposes that the line should where necessary be constructed or converted to the Indian broad gauge from Saidya to Bagdad. On the outline map the route I have shown is, I think, a slight improvement on this proposed alignment. From Naini Junction the route follows the E. I. R. main line to Fatehpur near Cawnpore, whence an entirely new line, constructed by the most direct route westwards to Luni, would, I believe, produce a shorter route with better gradients.

Whilst the Shanghai-Bagdad line is undoubtedly the most important trans-continental railway likely

¹ Vol. I, Part 3, page 299.

to affect India, we may usefully recognize others which are sure to be constructed some-day. Moscow will probably first be connected with India by a line from Baku to Bushire joining up with the Karachi-Bagdad line, but a direct route from Moscow to Delhi through Kabul and Peshawar, and on by branches to Calcutta and China will some-day be required. It will also be necessary to link up Siberia, with its valuable arctic and temperate products, with India. It may safely be predicted that nowhere in the world is a greater north-and-south trade possible. The physical obstacles to be overcome are enormous; nevertheless the building of a railway from the neighbourhood of Rawal Pindi northwards through or near Khogend to Omsk on the Trans-Siberian line must be regarded as a future necessity. Another north and south line will be needed to connect Bengal with Central Siberia and Northern China. Presumably it will pass through the Chamba Valley and Lhasa with an easterly trend, and then one branch will bend northwards to Lake Baikal and the other continue to Peking. Yet another trans-continental route will run from Rangoon through Mandalay and on northwards to connect with the last mentioned line and the whole Chinese system of railways, and another from Calcutta through Dacca (by train ferry) and Rangoon to Singapore. A short voyage thence to Port Darwin gives an almost complete overland route from London to Australia.

The second class of through routes consists of those determined by ports. The pre-eminent ports are Bombay, Calcutta, Karachi, Colombo, Madras and Rangoon. It is on these that the railway systems have been made to converge; and we may take it that these ports have already grown to such importance, and that they fulfil the above named conditions¹ to

¹ See *antea*, p. 11, bottom.

such an extent, that they may be regarded as practically permanent. Although the railway systems already converge to a great extent upon the ports named, several of the ports, particularly Karachi and Colombo, are still incompletely served in this respect. Karachi needs broad gauge lines from the south-east (Ahmedabad); Colombo needs a broad gauge through rail connection with all parts of the Peninsula south of Trichinopoly by lines converging on Adam's Bridge. The importance of this lies in Colombo being directly upon one of the world's greatest highways; whereas all other Indian ports are removed therefrom and must create their own traffic.

5. *Convergence on Trading Centres.*—The fact that commodities frequently require to be handled at markets requires that traffic be made to converge upon places which are already market towns or are suitable to become such. Commodities can only be sold without handling at markets by means of a system of public grading or by an enlightened use of samples. Such commercial organization is very backward in India; and it would appear that local markets to which produce must be taken in bulk will continue to have their present importance for a century or two. Where market towns already exist, roads and local railways should be made to converge on them (see page 10); where none exist the alignment of roads and railways will follow the trend of the country towards the great traffic routes, the direction being determined by the nearest principal trading centre.

The trade emporia, as we may call these principal trading centres, require separate consideration and treatment. The great port towns are naturally such emporia; but there are also a few ancient inland trading centres which must be included in this category, as for example, Cawnpore, Ahmedabad and Amritsar. Every

such emporium, which has been a trading centre for generations past, has great prestige, and a kind of good-will arising purely from the long-established habits, of up-country dealers journeying thither to make their purchases and of petty merchants resorting there to dispose of raw produce. The credit facilities of such a centre are also one of its most important assets. It is an advantage to any district to be put into the most direct communication possible with such an emporium, and consequently the streams of traffic for a distance of at least 150 miles in every direction should be directed primarily upon such a town. This principle is by no means attended to in India, because the immediate interests of railway owners often apparently, or even really, conflict with it. A main line of railway owned or worked by a company, for example, wants by its branches to direct traffic down the main line, ignoring the fact that it may thereby be providing an exceedingly roundabout route to the nearest emporium. Again, a native state or a district board will desire to keep a branch, which it has financed wholly or as much as possible within its borders, or to feed traffic to its principal town, ignoring the interests of the producers and consumers of its agricultural territory who would gain much by having the shortest connection with the nearest great emporium.

6. *Political and Fiscal Barriers.*—Customs duties are barriers against trade, which always seeks to avoid them. This is equally true whether the duty be on import or export, whether levied at ports or on internal trade, and whether protective in character or intended for revenue for purposes only. Consequently, in many countries, the alignment of railways has been modified, or made completely different to what it would otherwise have been, because the frontier of

some state produced an artificial obstacle and limited the trade along what would otherwise have been the most profitable route. Arrangements can generally be made for through traffic to pass through in bond, so that it is not much interfered with. The greatest economic loss is caused by routes naturally suited for connecting populous regions in two contiguous political territories being rendered unremunerative by a customs barrier, with the result that most of the possible traffic never comes into existence, and such as does go by existing but longer routes. Where the customs barrier exists as part of the main fiscal policy of the country, it is not likely to be modified with a view to developing any particular district. In India, however, there are many native states which impose import and export duties, which, except when very moderate, tend to retard the development of trade. Octroi levied by large municipalities may have a like effect. The only advantage of such artificial barriers is that they can often be removed or modified by negotiation and bargaining. Every case must be considered on its merits, and much ingenuity may usefully be employed in providing a *quid pro quo* for the loss of revenue by the state or municipality so as to enable the construction of a railway which is estimated to pay after abolition or modification of the duty.

In laying out railways near or approaching to the frontier of any large country it is usually necessary to take strategic requirements into consideration. Military dispositions must be considered first in the proposed alignments; but, whilst adequately meeting this need, many modifications or additions may be made for the commercial development of the district. It should be remembered that the methods of warfare are evolving so rapidly that the most 'up-to-date' expert advice as to the strategic requirements is alone trustworthy.

IV. ECONOMIC PRINCIPLES

1. *Mutual dependence of Industries and Commercial Agriculture.*—In outlining a policy of economic development of any country or territory it is highly important to remember the interdependence of manufacturing industries and commercial farming. Neither can exist without the other. It is the surplus produce of agriculture beyond what the rural population needs for subsistence, which provides it with the purchasing power which, if wants be stimulated, creates a demand for the manufactured products, and thus calls factories into existence. Secondly, it is the surplus produce of agriculture which provides, either in itself directly, or by exchange, the raw material of industry. The indispensable links are good communications and organized markets.¹

Thus in planning roads and railways to provide an outlet for surplus agricultural produce from any district it should be remembered that a demand to import into that district manufactured products will be created, and the question of whether it is better to facilitate the growth of a new manufacturing centre, or to provide easy communication with an existing manufacturing town, must be considered. Owing to the external economies of the market being far more important in some industries than in others, no general answer to this question can be given. Every case has to be considered on its merits on the basis of the probable demand for, and present location of the sources of supply of, the principal kinds of manufactured goods, and the location of such sources of supply relatively to markets for the chief sorts of agricultural produce coming from the district.

2. *Laws of Increasing and Diminishing Returns.*—A very important economic principle is the distinction to be made between industries according as they

¹ For a full statement of the foregoing theory see the Author's paper published in the Report of the Eleventh Indian Industrial Conference, Bombay, December, 1915; Part II, Papers, pp. 53-65.

predominantly obey the law of diminishing returns or the law of increasing returns. Industries which obey the former are agriculture and all extractive industries such as mining, forestry, fisheries, etc. Any of these industries may become predominantly subject to the law of increasing returns at any particular place or time, but such an event could not be anticipated, and the only safe plan is to assume that the law of diminishing returns is predominant. In regard to the manufacturing industries the reverse is the case. It must generally be assumed that the law of increasing returns is predominant except when there is any particular reason for supposing the contrary. The result is that whilst we must assume agriculture and the extractive industries to be always tending to spread themselves as widely as possible over the country, the manufacturing industries tend to develop with increasing success at particular centres where they have gained a start. This is the reason for most of the apparently peculiar facts relating to the localization of modern industries, *e.g.*, the fine cotton spinning industry in Lancashire, the brass bedstead industry in Birmingham and the jute industry in Calcutta.

In planning the economic development of any territory, therefore, it is most important that no rash attempts should be made to establish new centres of manufacturing industry. The balance of advantages is always likely to be on the side of an existing centre of manufacturing industry, so long as it is within a distance which is reasonable with regard to the freight rates of the kinds of goods there manufactured. Some special conditions, as in regard to supply of raw materials relatively to the directions of streams of trade, or an exceptional convergence of through railway routes, or specially cheap power, should be present to justify the anticipation that a given point will be

favorable for the development of certain manufacturing industries.

3. *Investment of Capital—Waiting for return.*—From the point of view of economic theory, one essential feature of capital in every form in which it enters into commerce and industry, is that it enables a producer or consumer to wait for the enjoyment of the results of his labor.¹ When a machine is constructed the owner thereof enjoys the fruits of his labor, or of the labor which he has purchased, throughout the number of years through which the machine remains in service. The machine may go out of service, either because it wears out, or because there is no longer a sufficient demand for the products which it is used in making.

Any great public work is similar in economic properties to a machine, except that generally speaking it cannot be moved and that it takes longer to construct. There is again a further difference, in that most engineering structures have a much longer duration of service than any machine, and, with the growth of population, they therefore continue for several decades to increase in earning capacity.

Just as a machine must yield from its use income sufficient for a depreciation fund being accumulated which will replace the capital sunk in purchasing the machine by the time it is worn out, so must the income derived by the community from the use of any public work be sufficient either to provide a sinking fund for replacing it when worn out or to provide annually for repairs a sum sufficient to keep all the parts of the work in a condition equal to new. Such an annual charge for maintenance must be a first charge on the net revenue gained from the work, and the balance of the income goes to pay the interest

¹ W. S. Jevons, *Theory of Political Economy*, 4th edition, pp. 226 *et seq.* Marshall, *Principles of Economics*, Book 2, chap. iv, sect. 8. Carver, *Distribution of Wealth*, p. 232.

on the capital cost. In the case of a large public work, however, whether it be an irrigation canal, a railway, or a hydro-electric power plant, the demand for its service is necessarily a matter of slow growth because no large population can exist in the district without its presence. During the early years of use of the work, therefore, the revenue, after providing for the annual maintenance charge, is not sufficient to pay the interest on the capital. The fact is that it cannot be expected to be so. In project estimates an irrigation canal is generally allowed ten years for the demand for water to increase sufficiently for the estimated return to be realized; in other words, the revenue estimate is made on the basis of ten years anticipated growth of demand. Railways built through sparsely populated districts may take even longer to develop an earning capacity equal to the average current rate of interest on their capital expenditure. In the same way a hydro-electric power station which does not happen to be located beside an existing town or industrial district must necessarily supply current at a loss for several years, whilst manufacturers are discovering the facilities which the locality offers, and are finding the necessary capital and erecting their factories. The return earned by public works of a non-competitive character tends constantly to grow, so that after some years the net earnings not only equal the interest on the original and any subsequent capital outlays, but tend to exceed it more and more every year owing to the normal growth of population and wealth of the community, and the consequent continually growing increase of demand for its services.

The point to which it is important that attention should be directed is that what I have outlined is the normal experience as regards the earnings of public works. It must be expected that during the first ten

or twelve years they will pass through a lean period during which the net receipts, after providing working expenses and maintenance, fall short of the interest. The shortage will normally decrease from year to year, though it may do so irregularly if demand depends on the seasons. Such a net loss of interest for several years is, therefore, to be regarded as a normal expense of economic development with large public works. The amount of such loss year by year can often be estimated beforehand with a fair degree of accuracy, and the loss anticipated in the whole series of years must be added to the original capital cost and be taken into account in determining whether the net earnings will eventually be more than enough to pay the interest on the total capital cost. Moreover, as I shall show later, such loss of interest can properly be paid out of borrowed capital.

There remains, however, one further consideration. If the period of waiting, before the anticipated return can be expected to equal the interest charged, amounts to many years, the whole loss of interest may amount to a considerable sum, which a joint stock company, or a district board, or other local body, may not be financially capable of bearing. A company must anticipate being able to pay a fair dividend within four or five years or it will have difficulty in raising capital from the public, however good its ultimate prospects may be. The inference is that it should be *par excellence* the duty of Government to undertake those public works, the revenues of which are bound to take many years to mature. The credit of Government is better than the credit of any local or private body could possibly be. It can, therefore, provide this deficit without difficulty, if needs be by further borrowings. It is in every way better able to wait for its returns than any other body; and hence waiting over long periods for returns should be a special part of its policy.

4. *Depreciation of Capital Goods, and Maintenance of the Capital Fund intact.*—Every kind of tool or machine tends to wear out with use, and every kind of building or other structure has a tendency to deteriorate, or even to disintegrate from the action of the weather and other natural forces. During the early years not much deterioration is observable; but it may increase rapidly at a later date. Expensive repairs become necessary; and if no reserve fund has been built up out of revenue it will be necessary to raise fresh capital in order to keep the machine or structure in useable condition. This would be very bad finance. Both from the economic and financial point of view it is essential clearly to recognize that the original capital fund should be maintained intact. The capital which was originally invested in machinery, works and buildings may be said to *exist*¹ itself during the whole life of the machines and structures, *i.e.*, so long as they remain in useable condition. There are data accumulated by which it is possible to estimate approximately beforehand the probable life of every kind of machine, vehicle or building: and a sufficient annual charge to mount up to the original capital cost at compound interest by the end of its life must be debited as part of the cost of employment against the earnings of every kind of capital goods utilized for any kind of productive purposes or for direct enjoyment. It should be most clearly understood that failure to do this involves using up the original capital fund, and that a fictitiously high net revenue is obtained by making an insufficient annual charge for repairs and depreciation.

On the other hand, it is said that there are certain big engineering works requiring embankments, tunnels, massive stone dams, and the like, which are originally constructed in so solid and durable a manner that

¹ This term, first used by me in 1911, means precisely the same as *uninvest* (see Jevons, *Theory of Pol. Econ.*, 4th ed; pp. 231 and 284)

they may be expected to last in good working order for some hundreds of years, so that no depreciation reserve is needed. Instances are quoted of Roman aqueducts which, with slight repairs, are serviceable and in use at the present day. To this view it may be replied that, whilst the lengthy physical endurance of great masonry works is not to be denied, the rate of progress of modern civilization is such that it is doubtful whether any of such works would be found to be of sufficient utility a century hence to be worth maintaining in use. The invention of new engineering methods is likely to open up new ways of achieving the same results at a lower working cost. Whilst this cannot be confidently asserted, there is in it at least sufficient probability to make it unwise to assume that any kind of engineering work—road, railway, irrigation canal, or dock, will be worth maintaining in use or operation for more than a hundred years. This should be taken, I think, as the limit of the period in which capital is to be recovered out of revenue. In many cases, of course, the progress of invention will give to railways, and possibly to some irrigation canals, a much shorter life than this. The electrical working of railways, particularly in mountainous countries, will so greatly decrease the cost of working that the existing steam lines may be scrapped after a life of only twenty or thirty years. Such an example is only a particular case of a general economic law—that of the evestment of capital from dying industries. This may take place directly or indirectly. In the first case the original owners of the capital recover it by instalments from revenue; and, foreseeing that a new mechanical means of producing the same service (*e.g.* the change from horse-drawn vehicles to motor cars) is gaining the field, the capital so recovered is re-invested in the new instrument instead of the old

one. There is thus a gradual transfer of the capital fund from one form of instrument to another. In most industries, however, this takes place in an involuntary manner. The decline of the demand for the goods produced means a lower price and a revenue so much reduced that the owner of the capital can find no margin beyond meeting his ordinary expenses. He consequently uses up his capital fund, whilst other persons to whose services the public demand has transferred itself are making big profits from which they can save and accumulate a new capital fund. The original owners lose their capital, but the total social capital is not reduced.¹

5. *Loss of Interest during construction.*—Attention must be drawn to a well-known economic fact, which however is often overlooked by promoters of large enterprizes, namely the loss of interest which arises from capital lying idle in partly finished works during the period of construction. Taken at compound interest this may mount up to a much larger sum than might be anticipated; and it may well be that a more expensive method of construction which would complete the work in a much shorter time would be cheaper in the end. If definite estimates are available as to the cost of completing the work within different periods, it is possible easily to calculate which will be the cheaper in the long run. The rate of interest to be used in the calculation is the estimated net rate of return on the capital invested after the undertaking has reached maturity in its working, *i.e.*, ten, fifteen or twenty years after the commencement of operations.

Two distinct classes of cases may be recognized, which, however, shade into one another in practice. The first class includes cases where only the capital

¹ The maintenance and transference of the total fund of social capital is very lucidly explained by J. B. Clark in his *Distribution of Wealth* (Macmillan Co., U.S.A., Chaps. IX, X and XVIII). The reader should also refer to Irving Fisher, *Nature of Capital and Income*.

expenditure sunk in the work in question itself is kept idle pending completion. The second class includes all cases where delay in completing the work in question also involves equal delay in realizing income from capital expenditure on connected works already completed, or capable of being speedily completed without extra cost for hastening the work. A good example of the first case would be a long tunnel being constructed so as to shorten the route and improve the gradient of an existing open line, assuming the approaches to the tunnel to cost very little in comparison with the tunnel itself. In this case the railway is working and yielding revenue all the time, and it is only the capital actually sunk in the tunnel itself which is idle. Let it be estimated that on completion the saving annually effected by use of the tunnel will be at least Rs. 80,000 per annum, *i.e.* 8 per cent on the minimum capital outlay. Also let it be estimated that by the slow method of construction, the time taken being 50 months, the cost will be Rs. 10,00,000; and that by the fast method, completing in 20 months, the cost will be Rs. 11,00,000. It will also be assumed that the capital needed for construction of the tunnel is obtained by issuing debentures or cumulative preference shares at 6 per cent per annum; and this is assumed to accumulate at compound interest with monthly rests. The figures work out as follows:—

	Slow method	Fast method
	<i>Months</i>	<i>Months</i>
Time taken to complete ...	50	20
Capital Outlay (excluding interest)	<i>Rs.</i>	<i>Rs.</i>
	10,00,000	11,00,000
Cost, including accumulated interest to time of completion	11,32,000	11,55,000
Net cost (30 months net profits deducted)	11,32,000	11,28,250

It will be seen that the cost including accumulated interest *up to the date of completion* in each case is slightly greater by the faster method. To be correct, however, it is necessary to allow for the net profits earned during the thirty months of time which the fast method saves; and in calculating the net cost I have assumed that 6 per cent interest continues to be paid on the total cost Rs.11,55,000, giving Rs. 69,300 per annum as interest charge. Then we have:—

$$\text{Rs. } (80,000 - 69,300) \times (30 \div 12) = \text{Rs. } 26,750$$

as the saving which, deducted from Rs.11,55,000, gives the net cost. It is obvious that in spite of the fast method costing 10 per cent more than the slow method, there is, with the other conditions assumed, a saving of Rs.3,750 by adopting it.

In giving an example of the second class of cases I shall show that a capital cost increased by even 66 per cent or more may be in reality the cheapest if the rapid completion thereby secured enables other costly works already completed, or capable of earlier completion without additional expense, to come into operation; and this in spite of the fact that I shall take the rate of interest only at 4 per cent and, assume it to accumulate only by half-yearly rests. I shall also take the net earnings to be, when in full operation, but 6 per cent on Rs.1,09,00,000, which is the total cost by the slow method of completion. Let the capital outlay on the works other than the tunnel in question be one crore (Rs.1,00,00,000). The interest charge on this is 4 lakhs yearly. Let the estimated cost of the tunnel completed in 36 months be Rs. 9,00,000, and its cost

if completed in 18 months Rs.15,00,000. The following table gives the results of the calculations:—

	Slow method <i>Months</i>	Fast method <i>Months</i>
Time taken to complete ...	36	18
	<i>Rs.</i>	<i>Rs.</i>
Capital Outlay	9,00,000	15,00,000
Cost, including accumulated interest to time of completion	9,46,218	15,30,200
Add 4 % per annum on total cost of completed works for 1½ years	6,00,000	6,91,812
	<u>15,46,218</u>	<u>22,22,012</u>
Deduct net earnings for 1½ years	<u>nil</u>	<u>9,81,000</u>
Net cost of tunnel as part of scheme	15,46,218	12,41,012

It will be observed that the anticipated earnings are a very big factor in determining the net cost. A case might arise in which the estimate of net earnings was very vague, or unreliable; or again the net earnings might be estimated to exceed the interest charge by only very small amount, if anything. In both these hypothetical cases the proper comparison would be between the costs which include all interest accumulated prior to date of commencing operation; that is to say, in my second example, between Rs.15,46,218 as the cost by the slow method with Rs.15,30,200 as the cost by the fast method, although the accepted contractors' estimates (and other outlay) came to Rs.9,00,000 and Rs.15,00,000 respectively.

It might be objected that these examples are applicable to the finance of a public authority or government administration owning such a railway or other work (*e.g.* docks or tramways), but that when owned by a joint stock company a difference would be created

by the fact that the money is provided by share capital. Even if there were not the usual provision that interest may be paid to shareholders out of capital during the period of construction, the ultimate result to the shareholders is exactly the same as to a public authority. For one thing, their money when not locked up in works under construction should be earning for them 4 per cent interest on deposit with a banker, or in any easily saleable security. Consequently at least this rate of interest should be compounded as part of the cost of works in which capital lies idle pending completion. It is true that the adoption of the faster method would leave the company's block account bigger; but the company's shareholders would be more than repaid by the earlier dividends which they would secure. In reality, however, it would not be good finance to distribute the whole of the profits gained by completing a work rapidly by means of an increased capital outlay. Such part of these profits as would represent the normal rate of interest on the capital outlay during the period of time which has been saved should be deducted from revenue and credited to capital in reduction of the block account. This need not necessarily be done during the actual period of time during which earlier operation was secured by the enhancement of the rate of completion of the work: the amount may be calculated, and its deduction from revenue may be spread over a longer series of years, thus providing the earlier dividend, but at a correspondingly lower rate at the time and in succeeding years. -

It may be useful to remark that in both the foregoing examples the figures of the different capital costs by the slow and fast methods of completion were purposely chosen so as to leave only a comparatively small margin of saving by adopting the

faster method. Consequently these examples serve to show the extent of the increased capital outlay which may under ordinary circumstances be remunerative by reducing loss of interest. Under other circumstances the figures may vary indefinitely, and each case will require separate calculation in accordance with the principles here set forth.

In addition to tunnels and bridges, and other essential parts of railways, we may note the following as a few more examples of the kinds of cases in which this principle needs to be kept in mind. In an irrigation canal system the building of the weir at the head works might take much longer than the construction of the canal itself and its distributaries, and increased expenditure to accelerate its completion might be justified. Again, a coal-mine cannot begin raising coal until a second shaft for ventilation and emergency exit purposes is completed; and a more costly method of sinking which saves time may prove highly remunerative. Suppose, again, that a new large factory has been entirely equipped, but that a vital part of the engine is found to be broken or defective, it will save money to obtain this in India, paying, if necessary, ten or twenty times the price which it would be necessary to pay to obtain it from Europe in the ordinary course after a lapse of two or three months.

The general principles dealt with in this section are strictly of a mathematical character, and the different cases could be calculated from suitable formulæ if all the data were given. It would be outside the scope of my present purpose, however, to go minutely into the subject here; and it will suffice if I give the following rule which may be useful to guide engineers and administrative officers engaged with large projects:—

Rule:—The value of additional speed in construction—that is to say, the ratio of percentage increase

of capital outlay to the percentage saving of time which is just remunerative—will be found to increase with the following conditions:—

- (1) the higher the rate of interest to be paid on borrowed capital.
- (2) the larger the total amount of capital kept lying idle in connected works relatively to the capital outlay on the work itself.
- (3) the greater the estimated earning capacity on maturity of the work as a whole, or of the series of works kept idle.

In public works where benefit of the population and indirect revenue due to increase of taxes are objects of policy, the earlier accrual of these forms of income is a factor which should be given its full weight.¹ These considerable advantages which may be expected to result from every successful public work should not be omitted from account merely because of the difficulty of obtaining a numerically precise estimate of what they are likely to amount to. Even if these factors be given a very moderate estimate in terms of money income, it will be found often that their inclusion makes an important difference in the solution of the problem of the most economical speed of construction.

The principle I have explained of avoiding loss of interest by delay in carrying out a difficult part of any work may be expanded into a general theory of the correct timing of every operation connected with the expenditure of money on engineering works, and as a useful study for engineers I may recommend the graphic method of solving this problem described by G. L. Bennet in his article entitled "A method of determining the time of performance of work, with special application to grading", and published in *Engineering and Contracting*, May 13, 1914, pp. 555-7.

¹ See *postea*, Chap. IV §§, 11, 12, and Chap. V. § 3.

I am indebted to Fish's *Engineering Economics*¹ for this reference, and I would recommend engineers and others who may wish further authority for what I have written in this section to refer to pp. 40-3 of that book, which also contains many useful suggestions, formulæ and data for the solution of other engineering problems.

6. *Speed of Transit*.—Merchants usually seek the cheapest routes for despatching goods, except in the case of perishable commodities, when speed of transit may become the most valuable consideration. In the case of non-perishable goods the interest lost on capital locked up during transit is the only normal reason for seeking rapid conveyance; but this may become a considerable item to some merchants who can make 25, 50, or even 100 per cent per annum on their capital. The availability of rapid transit may be of vital importance in developing certain industries, *i.e.* fruit growing, dairying and sea-fisheries. But the fact that increased speed of transit of goods is of great benefit to almost all trades and industries is generally overlooked. A railway system which on the average takes a week to transport goods 200 miles will not develop industries to the same degree as if it were worked so as to take usually only 24 hours to transport goods 200 miles.

7. *Marginal Productivity of Capital*.—An idea of fundamental importance in economics is that known as *marginal productivity*. It is a principle of the utmost importance in practice in every kind of business undertaking; but in connection with public works it is very apt to be overlooked. In every undertaking many factors of production are combined which we may classify under five headings; land, labor, capital, management and enterprise. The owner or enterpriser

¹ McGraw-Hill Book Co., New York, 1915.

it. A manufacturer, *e.g.*, considers what will be the value of the extra weekly output obtained by employing an additional workman, either with his existing machinery, or assuming an additional machine installed, in which case he must deduct the interest and depreciation on the machine. If the value of the weekly output of the workman is greater than the cost of employing him, which is mainly his wages, the manufacturer, if he knows his business, will employ him.

Exactly the same principle applies in the investment of capital. For example, a railway company has a large body of capital invested in its permanent way and rolling stock. Any additional capital expenditure is marginal as regards the undertaking as a whole. The advantage from the additional capital may arise either in reducing working expenditure, as in putting in a new siding, or in attracting additional traffic to the main line, as in putting on new well-furnished passenger coaches, or in building a branch line. Or again, an irrigation canal may have had its distributaries badly aligned and it may be shown that there would be economy, both in the pay of the staff and in saving wastage of water, by closing existing distributaries and making new ones. The saving might be estimated to amount to 10 per cent per annum upon the additional capital outlay required. This is the measure of the marginal productivity of capital in regard to this particular canal, and, if capital can be borrowed at four or five per cent, there will be a considerable profit from making the improvement. In every public work of a revenue-yielding character capital has a certain marginal productivity. Hence it should not be assumed, because investigation may have shown a few years ago that no more capital could be profitably expended, that that verdict still holds good. Re-investigation

from time to time will reveal numerous opportunities of profitably investing further capital.

8. *Natural Monopolies to be controlled by the State.*—Public works and what are usually called public utility undertakings, such as gas, electricity, and water-supply, telephones, tramways and so forth, have generally the nature of natural monopolies. This arises from three special features of such works—that they render their services directly to persons or property in actual contact with them, that they usually require much capital, and are immovable. In such cases competition is so exceedingly wasteful as to be almost impossible because the expense of duplicating the costly installation of wires, pipes, or tram lines, and so forth, is very great. A factory, on the other hand, produces goods which may be distributed over a wide region, and the consumers need have no physical contact with the capital instruments engaged in production. There is, therefore, valid ground for making a broad distinction between industries which are natural monopolies and those in which competition may have free play without the waste of capital and working expenditure being inordinately great. As many public utility services present opportunities of considerable profit, or at least appear to their promoters to do so, it has been found in many cases in England and particularly in America that companies do actually compete with one another in the same area for the supply of transport facilities by railways or the supply of electric power and light. The effects of such competition sometimes appear to be beneficial. They are in fact beneficial to persons residing in the competitive area who get faster and better train services, low freight rates for goods, and cheap electricity. Further investigation would usually show that this result is achieved only partly by more economical management and mainly either at the

expense of the shareholders who are getting small dividends, or else through a comparatively expensive or inefficient service being given to persons residing in the non-competitive area who in some cases are made to provide the bulk of any profit which the companies make. In India there has been no excessive competition for the supply of public utility installations; but with the growth of population and of extensive industrial areas, such as those of the Hooghly, of the Jharia coalfield, or of Bombay, the opportunities are greatly increasing. In the provision of railway facilities there are many cases in which competitive lines already exist; and several examples could be quoted of cases where an extension of, say, a metre gauge railway parallel with an existing broad gauge line would be highly profitable to the former although the broad gauge line is able to handle the whole of the traffic at present offering.

These considerations show that Government is right in reserving to itself the control of all public works and public utility services. Whether the State should itself own and work such services is an administrative question with which we are not concerned at this point. It is here important to observe only that the planning and control of the promotion of all such works and services should be actually in the hands of a central authority which must be some department of Government. The principle on which such control should be exercised is to avoid unnecessary waste of capital in installing the requisite plant, bearing in mind that great waste may occur, not only through competition but by lack of foresight in providing for the expansion of the future demand. The central authority will also regulate the rates to be charged by the monopolist for the services rendered, the object being to provide the service for the public at the lowest rate possible, compatible with yielding a

fair return upon the capital invested. This postulates an active, well-advised Government department employing many exerts; but this again is an administrative question which will be taken up later. It is only necessary to point out here that in so far as Government avails itself of private enterprise in getting public utilities provided, it should give every facility to promoters, firstly to ascertain the views of Government in regard to the services to be provided in any locality, and secondly to get their plans approved and all the necessary contracts arranged, rapidly. Nothing discourages and kills private enterprise more than long delays in getting official sanction to projects requiring large investments of capital. In the interests of the country at large every encouragement should be given to private enterprise under the control which I have indicated; and a policy should be adopted of reducing formalities to the minimum essential to control.

9. *Changes of General Level of Prices and Wages.*—A most important economic principle which is almost invariably overlooked in considering projects for public works is the recurrence of fluctuations in the general level of prices of nearly all commodities at the same time. The tendency of wages to a continuous rise is also usually overlooked.

The causes of the changes of the average level of prices cannot be fully discussed here. It is sufficient to observe that they fall into two groups: (1) cyclical or periodic fluctuations, and (2) a secular rise or fall. The cyclical variations occur in connection with the alternate periods of excited and depressed trade which usually vary from seven to eleven years in length. Rates of wages also fluctuate; but in this case the cyclical variations are less marked than in the prices of materials, and the continued secular increase over a long period is very important.

When large public works are to be undertaken it is of the utmost importance to make the best possible forecast of the future course of prices and wages rates during the period of construction. Big irrigation canal projects have been estimated in India and their commencement having been delayed some eight or ten years it has been found necessary to increase the estimate by nearly 15 per cent merely owing to the rise of prices and labor rates which took place in the meantime.

The only method of forecasting the future course of prices and wages is by inference from the experience of the past hundred years or more. To facilitate induction the yearly index numbers of prices and wages should be plotted for as many years back as figures are available. For the sake of illustration I have selected four series of figures: namely, prices and wages respectively in England, and in India. For English prices I have taken Layton's figures¹ compounded of the well known index numbers of Mr. Sauerbeck back to 1860, and those of the late Professor W. Stanley Jevons for the earlier years from 1782 to 1860, the two curves being recalculated so as to meet at this date; and so that the index number^{*} for 1900 is 100. As an example of a series of index numbers of wages in England, I have chosen those of artisans in the building trade compiled by the Labor Department of the Board of Trade back to 1874, and before that date I have taken the wages of artisans in the building trade of London.² These index numbers of prices and wages in England will be found plotted in the diagram facing p. 40. For Indian prices I have selected the series of index numbers prepared by the Commercial Intelli-

¹ *Introduction to the Study of Prices* (Macmillan & Co.), p. 116.

² See A. L. Bowley, *Wages in the United Kingdom in the 19th Century*, (Cambridge University Press); pp. 81, *et seq.*, and Chart opposite p. 90.

gence Department of the Government of India¹ from the prices of 39 articles. The Prices Enquiry Committee index numbers published in 1914 only extend through the period 1890-1912, but they cover a better range of articles. The Commercial Intelligence Department index number includes a very large proportion of agricultural products which have risen less in price than most of the materials of construction. As the Prices Enquiry Committee index number represents the latter adequately it is not surprising that it rises more rapidly in recent years. Both series of figures are plotted in graphs in the diagram on page 41. In both cases the index numbers represent rupee prices—that is to say, they have not been modified to a gold basis in accordance with the fluctuation of sterling exchange.

Reliable statistics of wages in India are not accessible for a long series of years, and doubt has been thrown on the accuracy² of some of the figures which have been collected by Government from a number of sources throughout the country since 1873, and which are published in the annual report on *Prices and Wages in India*. These being the only figures available, however, I have had no option but to use them; and there is the satisfaction of knowing that such error as they may contain probably leads to an understatement of the extent of the rise of wages; because wages have undoubtedly in the long run risen more often and by greater amounts, than they have fallen, and the tendency is merely to report the same as last year. Choosing 20 series of figures, 12 being for wages of skilled labour (chiefly carpenters, masons and mechanics) in various parts of India, and 8 series of figures for agricultural and unskilled industrial labour, I have

¹ See *Variations in Indian Price Levels from 1861 to 1912*; by the Department of Statistics (Calcutta: Superintendent of Government Printing, India).

² *Vide* Prices Enquiry Committee Report, Vol. I., Appendix G., p. 255.

calculated¹ a series of index numbers as follows:—

Year	Index No.	Year	Index No.	Year	Index No.
1873	100	1888	116	1903	128
1874	99	1889	121	1904	125
1875	103	1890	121	1905	131
1876	107	1891	123	1906	138
1877	108	1892	120	1907	139
1878	104	1893	121	1908	160
1879	108	1894	121	1909	158
1880	110	1895	123	1910 ²	155
1881	109	1896	122	1911	163
1882	109	1897	121	1912	163
1883	112	1898	125	1913	170
1884	113	1899	122	1914	178
1885	118	1900	132	1915	181
1886	114	1901	127	1916	185
1887	115	1902	124		

These index numbers of wages are also plotted in the diagram (p. 41) together with the graphs of Indian prices, and are distinguished by a broken line.

Inspection of the graph of prices in England (opposite next page) shows the following secular movements:—

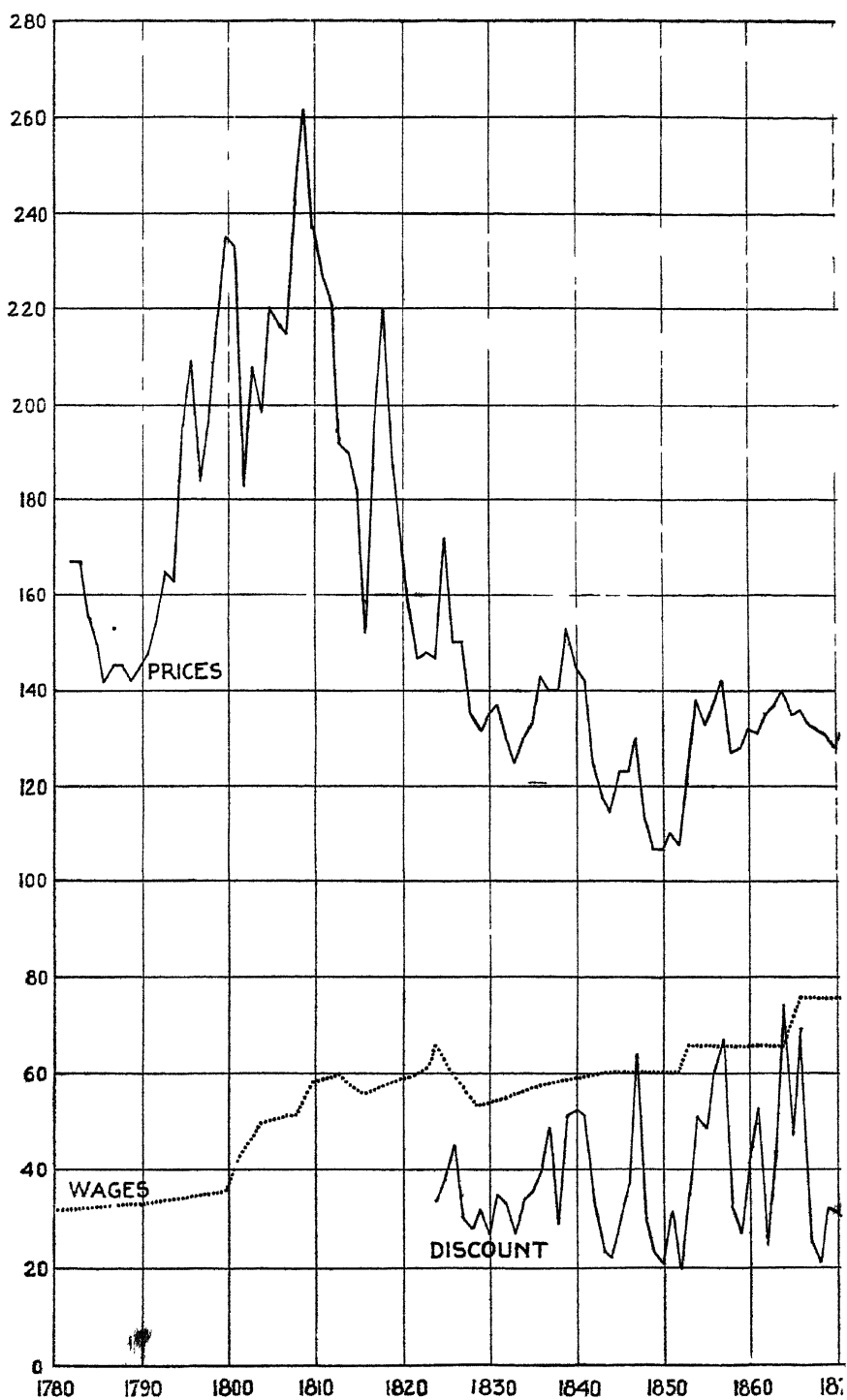
Periods	Rising Prices Years	Falling Prices Years
1789 to 1809	20	
1809 to 1849		40
1850 to 1873	23	
1873 to 1896		23
1896 to 1917	21	
	<hr/> 64	<hr/> 63

¹ With the assistance of Mr. Pritam Singh, Reader in Economics in the University of Allahabad.

² From 1873 to 1909 the following series of figures were taken from *Prices and Wages in India*:—Masons, carpenters, and blacksmiths at *Amritsar*, *Rawalpindi*, *Ahmedabad*, *Karachi*, *Bakarganj*. Carpenters: Lahore; carpenters and masons-bricklayers, Brahmini Baitarni Div., Orissa canals. Skilled labor, E. I. R., Cawnpore, Delhi. Fitters, Lahore, N.W.R. Stone cutters, Orissa canals. Agricultural labor; *Amritsar*, *Rawalpindi*, *Ahmedabad*. Unskilled labor: Lahore, Cawnpore, Delhi; Orissa canals, B. B. and Mahanadi. From 1910 onwards those shown in italics in the foregoing list were discontinued, and the first five were substituted by postmen at Aligarh, Peshawar, Ahmedabad, Karachi and Bakarganj respectively. No substitution was made for the agricultural laborers, so that from 1910-12 the index number is the mean of 18 rates, from 1913-15 of 17 rates, and in 1916 of 12 rates.

Thus, in the whole period of 136 years for which index numbers are available there have been three periods of secular rise of prices and two of secular fall of prices, besides the initial years which cannot be classified. Without attempting to enter fully into the causes of these changes, it may be said that the progress of civilization seems to bring two opposing tendencies to bear upon prices, of which sometimes one and sometimes the other is preponderant. An expansion in the quantity of currency in circulation relatively to population is the normal accompaniment of increasing wealth; and this takes place not only in coin and paper money, but also in a far more important way in banker's credit. Going back 100 years in India, or 400 years in England, we find that prices of home made produce have roughly speaking trebled, and this must be due mainly to the great increase of the circulating medium. The other secular tendency is towards a constant reduction of price of all articles (one after the other, again and again) through the cheapening of the means of transport and the invention of far cheaper modes of production, and the abolition of customs barriers, monopolies, etc. But invention acts *temporarily* with the reverse effect, stimulating the demand for free capital and thus creating credit, besides quickening the demand for materials and raising wages of employees, thus causing a more rapid circulation of existing currency. Great wars have an even more intense effect of the same kind.

The French Revolutionary wars and the subsequent Napoleonic wars were probably mainly responsible for the first secular rise (1789-1809). The withdrawal of inconvertible notes, and failure of many banks, were part of a general contraction of credit which was bound to follow the inflation, and initiated the secular fall, which was continued by the progress of communi-



To face page 40.

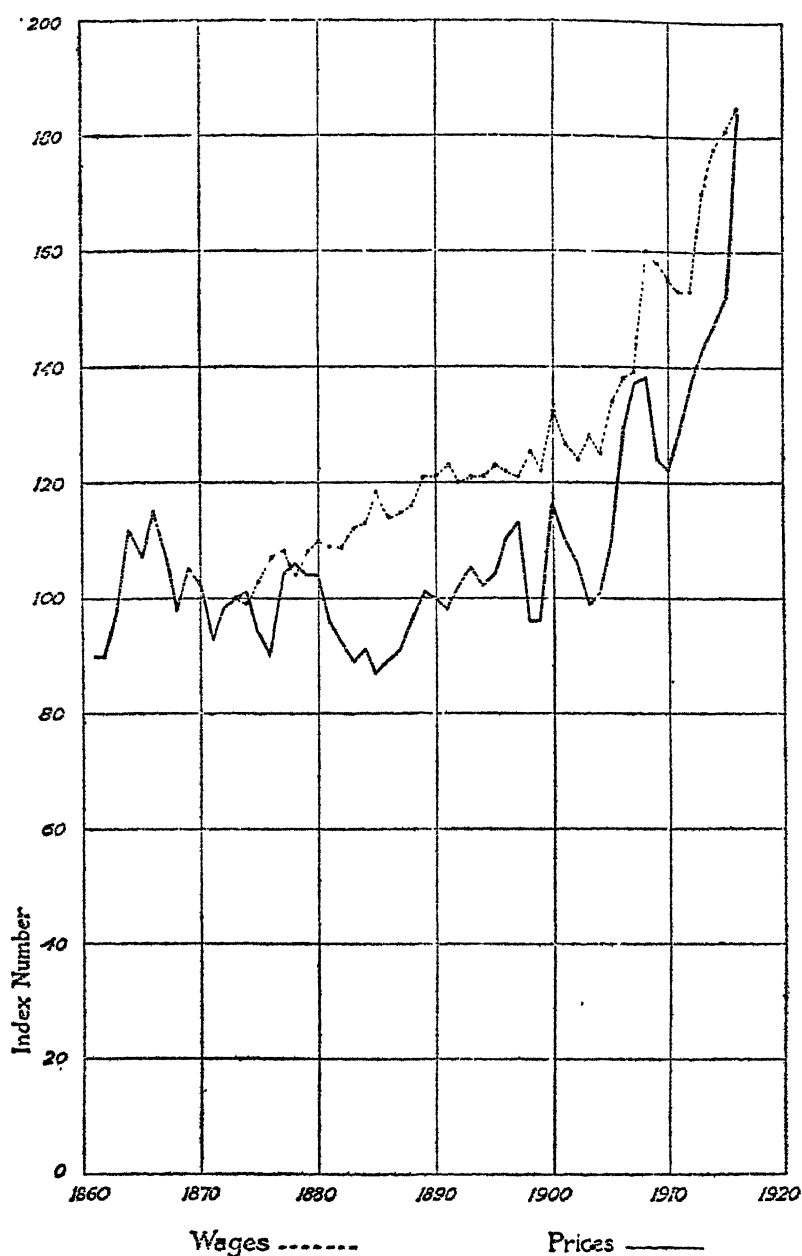


FIG. 1. PRICES AND WAGES IN INDIA

(The index numbers of prices for 1918 to 1916 have been kindly supplied to me in advance of publication by the Director of Statistics for India.)

cations, adoption of free trade, the progress of invention, and the expansion of population and wealth together with a comparatively small gold production, thus restricting the growth of normal, *i.e.*, non-belligerent, credit. The rise from 1850 to 1873 is usually attributed to the discoveries of gold in California and Australia, to which were added the effects of the Crimean War and the wars of Prussia with Austria and France. The great boom of 1873 may have been due partly to the re-establishment of European peace, but probably was caused mainly by world-wide bumper harvests in two succeeding years. The period of falling prices from 1873 to 1896 was probably partly due to the falling price of silver and the demand for gold for coinage thereby occasioned, partly to low gold production, and partly to a continuous tightening of credit by British banks after experience of crises, and the contraction of credit in America. The rise since 1896 appears to have been initiated and stimulated by the great output of gold from South Africa combined with the opening up of colonial countries, and the great expansion of credit in Continental Europe. A great series of inventions, such as the internal combustion engine leading to the motor car, and in all fields of electrical apparatus, has also continually stimulated demand.

10. *Cyclical Fluctuations of Prices.*—The cyclical fluctuations of prices clearly reveal themselves in the curve as steps or jagged teeth in the upward or downward secular movement of prices. They are irregular in length and clearly fall into two classes: minor, from 3 to 5 years duration (from maximum to maximum); and major, from 7 to 14 years duration. The minor cycles are not very important in their absolute effect on prices, and might be neglected were it not that it is important to notice that they appear to be sub-multiples of the longer cycles. I have elsewhere put

forward the hypothesis¹ that the irregular periodic fluctuations of harvests which average about $3\frac{1}{2}$ years in duration are caused by like fluctuations in the weather and in the radiation of solar energy. It would seem that various economic factors controlling the trade cycle receive their impulse from the harvests². The curious coincidence of the average period of recurrence of commercial crises with the average period of sunspot maxima was noted long ago by my father³.

For our present purpose however, it will be sufficient to note what were the years of maxima after which a sudden rapid fall of prices commenced. Going backward along the curve of prices we find they were as stated in the left hand column below, the interval being given in the right hand column:—

Date of Maximum	Years interval	Date of Maximum	Years interval
1907	7	1847	8
1900	10	1839	14
1890	10	1825	7
1880	7	1818	9
1873	9	1809	9
1864	7	1800	4
1857	10	1796	13
1847		1783 ⁴	

There is no index number of prices for the century preceding 1782; but the course of prices can be inferred fairly accurately from the total value of foreign trade, as may be seen by comparing prices and trade in the nineteenth century; and fortunately we have official

¹ *The Sun's Heat and Trade Activity*. London: P. S. King & Co. 1909.

² Cf. A. Study of *Industrial Fluctuation* by D. H. Robertson (P. S. King) Chaps. VI and VII.

³ W. S. Jevons, *Investigations in Currency and Finance*, ed. 1884, pp. 194 *et seq.*, being reprint of paper read at British Association in 1875.

⁴ The index numbers for 1782 and 1783 are equal, but the phenomena of the latter year were akin to those of other years of maximum immediately preceding a rapid fall.

returns extending back to 1700. The maximum of foreign trade does not always coincide exactly with the year of maximum prices; and two other sets of figures have enabled me to make the necessary verification or correction one way or the other. Back to 1731 I have used the statistics of bankruptcies¹ adopting the rule that when prices are rising rapidly bankruptcies are low, and that the first year of higher bankruptcies after one or two low years is the year of maximum prices in which the turn came. Prior to 1745 I have made use of a series of figures giving the annual production of tin in the mines of Cornwall and Devon as far back as 1667² and these figures give very striking maxima of production sometimes in the same year as a trade maximum, but more often in the year following. This latter is exactly what we might expect, as the response of production to high price would not be rapid in those days, and the fall of price was not usually serious until the year following the highest price. We find the same thing in the nineteenth century in the output of coal, partly due to the long contract system, that a year of maximum output comes a year later than the year of maximum price. I have little hesitation, therefore, in giving the following list of years of maximum prices³; but should add that those prior to 1700 are based on the statistics of the production of tin only, supported, however, in the case of 1686 by the fact that a crisis began to develop in that year⁴ and in the case of 1696 by an index number calculated from

¹ W. S. Jevons, *Investigation in Currency and Finance*, edition of 1885, Chart at end of volume.

² *The Stannaries* by, G.R. Lewis.

³ These dates differ in some cases from the dates of "collapses" given by me in *British Assoc. Rep.*, 1910, p. 683, but the collapse ordinarily came a year or so after the maximum.

⁴ W. R. Scott. *Constitution and Finance of English Joint Stock Companies to 1720*. Vol. I, p. 464.

Houghton's valuable prices quoted by Thorold Rogers.¹

Years of Maximum Prices	Interval in Years	Years of Maximum Prices	Interval in Years
1670		1721	
	7		11
1677		1732	
	9		10
1686		1742	
	10		11
1696		1753	
	4		10
1700		1763	
	10		7
1710		1770	
	11		13
1721		1783	

Here again we find the recurrence of similar intervals: especially 7, 10 and 11 years.

The total number of trade cycles from 1670 to 1907 is 26, if the above dates be taken as correct; and the table below shows how they are distributed according to duration. The upper line shows the number of cycles respectively of each duration, that is of each length of interval from maximum to maximum, as shown in the lower line.

No. of cycles—	2	0	0	6	1	4	7	3	0	2	1	0
Duration												
in years—	4	5	6	7	8	9	10	11	12	13	14	15

Although the total number of cycles is not large, it is highly improbable that these figures with three distinct maxima would arise from a chance distribution. Consequently the following deductions seem to be justified:—

- (1) As there has been no four years' major cycle for more than a century, it is unlikely that in the near future a major cycle will be of less duration than seven years;
- (2) If a cycle has extended beyond seven years

¹ *History of Agriculture and Prices*. Vol. vi. The index numbers calculated from 15 commodities are : 1693, 100 ; 1694, 103 ; 1695, 105 ; 1696, 115 ; 1697, 114.

it will most likely be 9 or 10 years in duration¹; (3) but if it has extended beyond 10 years it will most probably extend to 13 or 14 years, the former being the more probable. There is also a small probability, say about 1 in 10, of a cycle being 11 years in length, through the prolongation of a ten year cycle, or of minor cycles so compounding as to produce it.

11. *Forecast and policy in regard to prices and wages.*—It is proverbially dangerous to prophesy; yet success in business and even in government depends very largely upon a correct anticipation of future events, through an estimation of present tendencies. It is solely with the object of illustrating how the generalizations relating to prices and wages may be utilized to obtain some intelligent forecast of their probable upward or downward trend that the following attempt is made at a forecast covering the next few years. With the lapse of time additional data will become available, and the forecast may be modified accordingly. But at the moment when the decision whether or not to enter into contracts for a large public work is imminent, it is highly important to make or obtain the best possible up-to-date forecast of this kind.

Owing to the constant enormous creation of credit by the belligerent countries and to the continuation of other causes resulting from the war, it would seem probable that prices will continue to rise rapidly so long as the war endures. Possibly in Europe there might be some fall, or a halt in the rise, as soon as decisive military events have brought peace negotiations within sight. It seems more probable, however, that the prices of metals, machinery and all construc-

¹ There appear to me to be indications, difficult to put in a few words, that the most probable duration of the present and future cycles will be 7, or 10, or 13 or 14 years, the last two figures being equally likely, but both much less likely than 7 or 10 years which periods probably accord better with the modern period of gestation in the majority of industries when national economy is undisturbed by war.

tional materials will continue to rise in price, because the demand for these must remain enormous during the two or three years immediately following the conclusion of peace. Writing still of prices in Europe, it may be expected that when the trade boom due to the return of peace conditions has worked itself out there will commence a longish period of falling prices—a *seculum* of twenty years or more—broken only by the usual cyclical fluctuation. The curve of the index number of English prices in the periods following 1809 and 1873 will indicate broadly the character of the movement which seems probable. When the reconstruction and contraction of credit and the reorganization introducing economies in production have worked out their full effect it would seem probable that a secular rise of prices similar to that which began about 1896 may follow.

It is certain that there will continue to be cyclical fluctuations which will be superimposed on the secular trend, and will determine the exact year of the maximum or minimum resulting from a change of secular rise to fall and *vice versa*. To forecast these cyclical fluctuations should be much easier than to foretell the duration of a secular movement. Referring back to the end of the section dealing with cyclical fluctuations (p. 44) it will be seen from the deductions there stated that if a cycle has extended beyond 10 years it will most probably extend to 13 or 14 years. The last year in which a maximum occurred was 1907; consequently it would seem likely that the maximum following the conclusion of the war will occur in 1920 or 1921. The exact year must depend mainly on the date of termination of the war, and on the relative effects of Russian, American and Indian harvests, and those of the southern hemisphere. Should the war be prolonged until 1920, however, it is quite possible

that the next maximum of prices might not occur until 1924.

The foregoing remarks apply to English prices, which vary closely with the world's prices of the principal commodities. The special conditions of the war have broken for the time being that close coincidence between Indian prices and those of the world's markets which had gradually become established. Here prices have risen less than in Europe and America; but a permanent difference of level cannot be maintained, except by permanently altering the parity of the rupee and the sovereign. Assuming that the latter course be not adopted, the re-establishment of unrestricted trade after the war, and the gradual lowering of ocean freight rates, must tend to raise prices in India; so that here they may continue to rise, or at least remain nearly stationary, for 3 or 4 years after the maximum following the conclusion of the war has been passed in Europe and America. Hence, in the absence of any change in the parity of the rupee, it would seem impossible to expect any substantial fall of prices in India earlier than 1923 or 1924, at which time a secular fall may perhaps begin.

The future course of wages is perhaps easier to predict than that of prices. Inspection of the graphs reproduced on the charts opposite page 40 and on page 41, confirmed by inspecting numerous other curves of wages extending over long periods, shows that the normal tendency is for wages-rates to rise with rising prices, though not so fast, and to remain stationary or fall only slightly when prices are falling. Wages in many industries and wages of unskilled labor may even continue rising slowly when general prices are falling. There are two causes always acting: (1) the tendency of the money rate of wage to vary with the cost of living and thus with general prices, but in-

fluenced predominantly by food prices; (2) and the tendency of the progress of economic development to increase the demand for labor, and of the progress of civilization to create a higher standard of living and thus check the supply of labor and increase its efficiency at the same time, thus causing a higher money wage rate. Generally speaking, if trade customs are maintained, and education be reasonably directed, the skilled labor will become more efficient and thus very possibly no dearer in effect at a higher wage rate; but the effective cost of unskilled labor is almost certain to continue increasing in the future as it has done in the past with the development of trade and industries. The probable continued rise in the cost of unskilled and semi-skilled labor is a factor of the greatest importance in projecting future public works in India; and there are few economic predictions which can be made with a greater measure of certainty than this.

Coming now to consider the determination of the policy which should be followed as the result of whatever forecasts may be made as to the future course of prices and wages, it is necessary to state first of all that past events of recent date should have no influence on the decision in regard to future action, except in so far as the experience they afford may help to determine or influence the forecast. There are many public bodies which have found themselves seriously embarrassed by the cost of projected works rising substantially even whilst plans were under consideration, and there is a natural, but oftentimes fatal, indisposition to accept the new conditions as anything but exceptional or temporary. It is believed to be safest to wait and see whether the rise of prices and wages will not be followed by a fall. This course is adopted not because of any reasoned forecast; but

because the public body is unable to make any such forecast and hesitates to "cut its loss". The correct policy obviously is to be continually making forecasts whilst works are projected, and to hasten or retard putting construction in hand solely on the indication of the best forecast available at the time. There might be justification in waiting for a better forecast, as, for instance, by waiting for the world's harvests of the year to be approximately known; but this is very different to a blind postponement in the hope of circumstances changing.

The policy in regard to time of commencement of works, and their several parts, in relation to prices and wages, will depend upon a differentiation between works requiring expenditure mainly on manufactured materials, especially such as are commonly imported, and works on which the expenditure is mainly for wages. As regards the former class the tendency of policy in a time of high prices like the present will be for postponement; but no decision should be made without taking into account the profitableness of the work either in direct revenue or in indirect benefit to the country.¹ A work calculated to yield 40 per cent per annum on its capital cost at the old prices would still yield 17 per cent on its cost when prices of materials forming two-thirds of its total cost at the old prices had on the average trebled, and there would still be a very handsome margin above the rate of interest. The extent to which a rise of prices of materials should be allowed to check new works depends, therefore, on five things (1) the extent of the rise, (2) its probable duration, (3) the percentage of total cost which these materials represent, (4) the original percentage rate of direct revenue (or better, if possible, of the estimated social income) anticipated

¹ See ensuing section on p. 57.

to the original capital cost, (5) the current rate of interest for long investments. Should the rise of prices or of the rate of interest be proved by calculation to have made the work unprofitable, it would be well to investigate the possibilities of cheap temporary construction with the object of giving the service at once and replacing the temporary by a permanent work at a suitable conjunction of low prices and interest. In deciding when to make the replacement it would not be good policy to assume that the temporary structure must, to justify its cost, remain in use for a certain minimum life. The opportunity of putting in a permanent structure at lowest cost might thereby be lost. I am assuming a great difference of cost between the temporary and permanent structures; but if the former approaches anything like one-half the cost of the latter it will have to be allowed a minimum life.

Turning to the other case in which the expenditure on the work will be almost entirely in respect of labor and of material obtained locally, it may be observed that the chances are always in favor of delay meaning higher wages rates and increased cost; so that if the rate of interest is favorable for borrowing, or funds are in hand, construction may as well go forward as fast as the labor supply and engineering conditions permit. The continuance during the war of constructive work on the buildings of the new capital at Delhi is amply justified on this ground, as well as for the object of keeping the staff of skilled workmen together.

Finally it is necessary to inquire how the cyclical fluctuations of trade should influence the policy of time of commencement of works. When trade is "sound" and active, and prices have begun steadily rising, it may be assumed that a boom of trade is approaching

in a year or two which will be followed by a collapse, when prices will fall. At such a time, then, when trade has become active, if contracts cannot be made at once it will probably be good policy to wait until the depression following the collapse. Prices may then be lower and wages at least the same, or but a trifle higher, whilst borrowing will almost certainly be made at a lower rate of interest. As far as possible public works requiring the purchase of much steel and other manufactured material can be best taken up during the period of depression. This secures lower prices for materials, and a lower rate of interest on the necessary loan; and it has the further advantage of regularizing the demand for labor, and thus lessening unemployment during periods of trade depression as was pointed out in the Minority Report of the Poor Law Commission.¹

12. *Definitions of Social Income, and other incomes.*—In considering and adopting a policy of economic development the statesman as well as the economist must have in view not merely the money revenues which will accrue to the State by the measures to be effected, but also the benefits, direct and indirect, which will accrue to the population. On this subject some clear thinking and careful definition is necessary; and to avoid misunderstanding I must ask the reader's close attention to the meaning of certain terms. We are to consider the whole income and expenditure of the community, which term I shall use to mean the whole population inhabiting a certain definite region, large or small. Whether this region corresponds with any political boundary or not is of no concern. In considering the different kinds of income enjoyed by such a community, I

¹ See Minority Report of Royal Commission on the Poor Laws, 1905-9; reprinted with Introduction by Sidney and Beatrice Webb: Part II. *The Public Organisation of the Labor market*, pp. 280-7 (Longmans, 1909).

shall proceed from the greater income to the lesser—from the whole to successively smaller parts—by a process of elimination.

Firstly, we must recognise what must be called the *total psychic income* of a community,¹ which means the sum total enjoyment day by day of all persons in the community, enjoyment being reckoned as positive or negative according to whether it takes the form of happiness, pleasure or satisfaction on the one hand, or of pain or discomfort arising from physical ailment or injury or from mental or bodily effort, or in any other way, on the other hand. No accurate measure of *total psychic income* is possible; no true measure can even be conceived because intensity of feeling between one person and another is at present completely incommensurable. Yet proportional changes in the positive or negative balance of feeling are conceivable, and by the adoption of the device of an index number as we do for averaging prices, which are also incommensurable, we may arrive at the idea of a relative increase or decrease of the total enjoyment of life by the community per unit of time, that is to say, *rate of enjoyment*. It is this total psychic resultant of all the activities of life in a given community for which I use the term *total psychic income*.

We next come to what is in some ways for practical purposes an even more important conception because it is approximately measurable, namely *social income*. In discussing the economics of a political unit such as Great Britain, France or the United States, this is often called *national income*. It means the sum total of all individual incomes received by the the persons composing the community.² The incomes

¹ Irving Fisher, *Nature and Capital of Income*, Chapter X. The whole book should be studied for a clear understanding of the various incomes.

² See Marshall; *Elements of the Economics of Industry*, 3rd Ed., 1905; pp. 52-3 and 235.

in question must of course be net incomes, that is to say, what remains at the disposal of the individual after deducting any salary or wages paid for assistance, interest on loans, rent of land or houses, and so forth, for these constitute the incomes enjoyed by other persons. Many statistical estimates of national income have been made, and the financial and economic questions involved have been adequately discussed.¹

It is only necessary to add that here, in discussing the art of economic development, I prefer to use the term *social income* rather than *national income*, because the area under consideration will usually be that of some geographical unit or other district considerably less in area than the whole country within the national boundary.

We have next to define the meaning of the *total revenue*; a term which may be used as regards any unit of territory to denote the sum total of the following three classes of money receipts: (1) Civil revenues, *i.e.*, total collections of Government and local authorities, from rents, taxes and fees (including land revenue); (2) Receipts of Government from its commercial services—railways, canals, posts and telegraphs, forests, docks, etc; (3) the receipts of other owners from public utility services which have the nature of public monopolies and which are established either under the control of, or with a concession from a governing body, or of which some share of the profits is paid to Government. In both cases the whole receipts, and not only the share paid to Government, are to be counted.

The above three divisions of the total revenue may be appropriately named from the special standpoint of the relation of the revenues or incomes to public

¹ See especially Irving Fisher, *Nature And Capital of Income*, Chapters IX and XIV; J. C. Stamp, *British Income And Property*, Chapter X.; L.G. Chiozza Money, *Riches and Poverty*, Chapter II.

works. Any revenue received by Government from such work on account of payments made *pro rata* for its services is called *direct revenue*, as for example the receipts of railways for goods carried or of irrigation canals for water supplied. Revenue arising under class (1) above, by increase of the total yield of rent, taxes and fees on account of the establishment of a railway, canal or other work in the district, may be called *indirect revenue* as regards that railway or canal.

The direct revenue, when regarded from the standpoint of a particular work is usually called the *gross revenue* (or gross receipts) of that undertaking. After deducting working expenses we have the *net revenue*, which represents interest on capital, and profits, if any. The balance remaining after deducting interest from net revenue is called *net profits*. The present practice of the Government of India is to strike an average each year of the rates of interest on all outstanding public debt, and to deduct this uniform rate from all works, Imperial and Provincial. Consequently the rate of interest charged varies slightly from year to year. In practice no difficulty has arisen; but in the strict theory of finance this is unsound, as will be explained later.¹

13. *Relations of Various Incomes.* — The mere definition of the various incomes which ought to be taken into account for scientifically practising the art of economic development is not sufficient. It is essential to have a clear idea of the relations of all these different incomes to one another. A full discussion of this subject would be quite outside the range of the present study and my observations will be confined to the minimum that is necessary to convey an understanding of the economics of public works. It should be stated that the classification and nomenclature of

¹ See *postea* Chapter x. § 5.

incomes which follows may differ in some respects from the practice of previous writers¹ and from what might seem best in a complete monograph on the theory of incomes. As the latter has not yet been written by anyone, I am forced to cover the ground just so far as is necessary for my immediate purpose; but, of course, I have been careful to avoid consciously making in my partial theory any statements which would be in conflict with the general theory of incomes when ultimately developed.

Total psychic income integrates the mental effect of all the activities of a community and it is the net balance of feeling resulting from the subtraction of an *outgo* (negative income) of unpleasant feeling (or dissatisfactions, including pain) from the *income* of pleasant feeling (satisfactions). Total psychic income must, of necessity, be greater than any other *net* income, for it includes them all. Total psychic income may be divided into two parts: (1) firstly all those satisfactions experienced by all persons composing the community, and decreases of dissatisfactions, which are purchased by expenditure of money or by giving goods in exchange, or by rendering services which are rewarded by payment in kind. Although the word *purchase* strictly relates to exchange with money only, I shall denominate as *purchased psychic income* all the psychic income which is bought with goods and services as well as with money. The total *purchased psychic income* is the psychic resultant of the *social income*; and as the latter is net already, the two correspond, except to the extent of the need of a small deduction from the former for any small balance of unpleasantness of the effort of purchasing.

(2) The other part of *total psychic income* is that which arises from all the experiences of life, all the

¹ e.g. Irving Fisher, Pigou, Pareto, and others.

contacts with environment, human and physical, which are not purchased, for which reason I shall call it *total free psychic income*.¹ This is more important on the human side—the contacts with wife and family in the home, with relatives, friends, and acquaintances, and the religious side; whilst purchased psychic income arises more from contacts with material things purchased recently or long ago, than from personal contacts purchased, as services of teacher, companion, etc. He is indeed a happy man or child who derives much free psychic income from contacts with things: the beauties of scenery and sunsets, the love of wild flowers, and of sports or games requiring no artificial aids.

Total social income may be divided for our present purpose into: (1) *Total of private incomes arising through public channels*. These will consist almost entirely of the salaries of persons employed by Government, local authorities, and public utility companies, and of the interest on public debt of all kinds, and the dividends of such companies. The word income is here used not to mean the whole of a person's income from all sources, but the income from a definite source. Thus a person with a salary of Rs. 500 *per mensem* and receiving Rs. 35 half-yearly as ~~interest~~ on Government debt has two incomes in the sense in which I now use the word. (2) *Total of private incomes arising from private enterprise* of all kinds, including all professions, trades, industries and arts whatever, and from private property of all kinds, *e.g.* landed estates (*zemindaris*) and house-property, ships, etc. It is received by individuals in various forms: as fees, salaries, profits, interest, rent, hire, and wages, the last being the largest and amounting in an industrial country or district to

¹ The word "free" has here the meaning of "gratuitous", or better *costless*, if such a word were current in English to signify anything obtained free of cost.

about half of the total of private incomes arising from private enterprise.

In the foregoing paragraphs we have been classifying the incomes of all persons according to how they are earned, or accrue—that is to say, from another point of view, according to the nature of the payments made by the employing body, which may be Government, or a merchant or manufacturer, whether individual, partnership or limited company, or may be the farmer or cultivator who employs land and pays rent to a landlord, or the borrower of money who employs capital and pays interest. Doctors, lawyers and other professional men are to be regarded as employing themselves. The same money streams which make these payments may also be classified from the receipts side in a simple manner:—

(1) All receipts of Government, local authorities, public trusts and public utility companies may be taken together and called *total revenue*, as defined in the preceding section (p. 54), and this may be subdivided into:—

(i) Civil revenue,

(ii) Direct revenue (gross receipts) of the commercial services,

(iii) Gross receipts of public utility service owners.

(2) All receipts of private persons, firms and companies, corresponding with (2) of the foregoing paragraph (p. 57), which may be divided broadly into

(i) Professional fees,

(ii) Sales of manufactured goods, and all agricultural produce,

(iii) Gross profits of merchants, less railway freights, duties, taxes, etc.

In practice cross combinations occur, as when a manufacturing company receives interest or dividends on investments, or lets houses to its own work people; but these cases do not alter the principles.

It is unnecessary to carry any further the analysis of incomes resulting from private enterprise and ownership; but in the case of Government revenues a further subdivision is necessary and is in use. Taking the civil revenues first, we may notice that it has long been the practice in connection with the major irrigation works in India to distinguish the portion of increased land revenue which may be attributed to the supply of water as *indirect revenue* of those works. A similar distinction could be and ought to be made as regards railways, and other public works. Hence we may regard the civil revenue as divided into two parts—the *primitive revenue*, as I intend to call that part which would have been obtained in any case by taxation, fees and rents in the ordinary process of governing an undeveloped territory populated to the maximum possible in its undeveloped state, and the *indirect revenue* of public works. It is impossible to determine precisely the amount of either of these revenues for a given district at a given time, for both grow with increase of population; but they may be approximately estimated at the present, and their future growth can be foretold with sufficient accuracy for the purpose of development programs.

The *direct revenue*, consists of the sum total of the *gross receipts* (or *gross revenue*, which is the same thing) of the commercial service operating each public work considered separately; and the following are the recognized subdivisions. Out of gross receipts a large part is required to pay working expenses. The balance is available to pay the interest on the capital outlay. Any further balance remaining is termed *net profits*. The cost of repairs to keep the works in thorough going order is included in working expenses, but it is not the practice of the

Government of India to show any deduction for a sinking fund after allowing for interest and before calculating net profits. In practice such a sinking fund is in existence, because a large part of the net profits which is taken into general revenue is subsequently allocated to capital expenditure on new works; but the amount is variable. Strictly speaking, therefore, *direct revenue* (and *gross receipts*) should be divided thus: (1) Working expenses, (2) Interest, (3) Sinking fund, (4) Net profits.

14. *Economics of Education*.—In a former contribution to this *Journal*, I considered the question what aims of human activities are to be accepted as the criterion of progress¹. The view there elaborated is, briefly, that the supreme criterion must be the happiness of the present and future generations—the interest of other peoples' happiness often outweighing one's own, and the desire to confer happiness on future generations often outweighing the desire to experience immediate enjoyment. All other commonly accepted ends—freedom, self-realization, and racial preservation—appear ultimately to resolve themselves into the greatest happiness of the greatest number, with the partial exception of the last, which involves also an ardent tribal desire to care for the happiness of the immediate descendants of the tribe or nation before that of other men—a universal and primitive instinct. Morality as a motive of actions may be analysed into various customs, rules (duty being a kind of rule) and laws, designed more or less unconsciously and clumsily to attain the greatest happiness of the community.²

It follows that the aim of education should be two-fold: (1) To give every person with the least expense to

¹ *The Relation of Economic Science to Social Progress*, Indian Journal of Economics, Vol. I., pp. 181-218. See especially pp. 199 *et seq.*

² It may seem unsatisfactory to give here a series of dogmatic statements on what is still a highly controversial subject. Suffice it to say that I accept the doctrine of *universalistic hedonism* as defined by Sidgwick in his *Methods of Ethics*; and find myself in general agreement with his conclusions because, by constant observation, I have found that the facts of life, including the phenomena of the gradual re-adjustment of moral standards in recent years, entirely support them.

the community, and the least effort to himself, the means of achieving the greatest happiness for himself; (2) To secure that every person acts so as to secure the greatest happiness of other persons with whom he comes into contact, and of the community at large. The most economical policy, therefore, is to arrange such moral education as will teach every individual to gain his own greatest happiness by trying to promote the happiness of others. This should be one of the fundamental and primary aims of education from the child's earliest years. In the senior classes children should be taught the responsibility of the more wealthy to the poorer classes of society and of employers to their employees. Finally, the morality of international relationships should be outlined.

The particular objects of education must necessarily be numerous. In any course of teaching they require to be balanced: (a) to the capacity of the individual, (b) to his probable environment in adult life. Fortunately a certain amount of sorting out and grouping of children according to capacity and the most probable environment in later life actually takes place automatically through the residential localization of different classes of society following different occupations.

For the purpose of the development of the happiness of the individual the course of education should be devised to have two immediate objects: (1) to enable him to gain his livelihood with the greatest efficiency, (2) to give him the capacity fully to enjoy his leisure time.

Specified more particularly, the kinds of teaching necessary to promote the development by an individual of his own happiness, as indicated by the foregoing principles, are:—(1) Physical development, and the study of hygiene, which contribute directly to health and thus to happiness; (2) Training of the senses and power of perception, with two objects:—(a) to increase the person's ability for production, both as regards quality

and quantity, (b) to increase the power of æsthetic appreciation and thus directly increase enjoyment. (3) Development of reasoning power, and habits of reasoned thought; (4) Development of imagination and retention of curiosity; (5) Instruction in the art of learning—reading, writing and their advanced analogues: studying books and composition; (6) Instruction in religion and the fundamentals of life; (7) Imparting knowledge of matters of general interest—such as elementary mathematics, science, geography, history.

The teaching required to promote the person's desire to benefit other persons and the community, and the knowledge of how to do it, is almost entirely moral and civic. It is obvious that social benefit will accrue from giving this a very important place in the curriculum from the earliest stages. The production of the complex of qualities which we call character requires a course of instruction in the art of life which will run parallel with the moral course on conduct. This analysis of the objects of education shows that the customary education partially covers but two out ten desirable objects of education. In other words, present education covers about one-eighth of the desirable field.

Finally, in order to attain economic efficiency in education, it is necessary firstly, to have a clear perception of the objects aimed at, secondly to secure efficiency in the investment process—that is, proper training of teachers and a sufficient number and supply of books and equipment; thirdly, properly to adapt the teaching to the ends in view by employing expert investigators and advisers. There appears to be no known limit to the percentage rate of return of income to money outlay on education, so that provided the actual teaching be wisely directed to those aims which are socially most important, there need be no hesitation in making a great expenditure of money in fulfilling the second of the above conditions.

CONTENTS

	<i>Page</i>
I.—INTRODUCTION	1
II.—GEOGRAPHICAL AND DEMOGRAPHICAL PRINCIPLES	
1. Necessity for geographical knowledge	5
2. Geographical units	5
3. Density of population, occupations and racial characters	6
III.—GEOGRAPHICO-ECONOMIC PRINCIPLES	
1. Varying distribution of natural resources and cultivated products	7
2. Potential resources	8
3. Natural trade routes	9
4. Ocean routes and through land routes	10
5. Convergence on trading centres	15
6. Political and fiscal barriers	16
IV.—ECONOMIC PRINCIPLES	
1. Mutual dependence of industries and commercial agriculture	18
2. Laws of increasing and diminishing returns	18
3. Investment of capital—waiting for return	20
4. Depreciation of capital goods, and maintenance of the capital fund intact	23
5. Loss of interest during construction	25
6. Speed of transit	32
7. Marginal productivity of capital	32
8. Natural monopolies to be controlled by the state	34
8. Changes of general level of prices and wages	36
10. Cyclical fluctuations of prices	42
11. Forecast and policy in regard to prices and wages	46
12. Definitions of social income, and other incomes	52
13. Relations of various incomes	55
14. Economics of education	60

OUTLINE OF REMAINING PARTS

It may be of interest to readers to give a brief outline of the contents of the remaining two or three articles with which it is intended to complete this series in forthcoming issues of this *Journal*. The following are the titles of chapters,

and of the principal sections thereof, as now provisionally settled:—

V.—FINANCIAL PRINCIPLES

1. Importance of the study of finance
2. The three systems of finance
3. Taxable capacity
4. Distribution of burdens as between present and future—
Periods of public debts

VI.—OBJECTS OF DEVELOPMENT

VII.—SOCIAL, POLITICAL AND LEGAL PRINCIPLES

1. Security essential
2. Evolution, natural tendencies and control
3. Land tenure system, stability and inertia
4. Mobility essential to true development—its place in social
development

VIII.—ORDER OF DEVELOPMENT

1. Measures to be undertaken for development, and general
principles of their scientific co-ordination
2. Economic principles applicable to determining order of
undertaking measures of different kinds
3. Order recommended for undeveloped tracts

IX.—PLANNING AND DESIGNING PUBLIC WORKS AND THEIR CO-ORDINATION TO SECURE MAXIMUM EFFICIENCY

Railways (location of)—Road planning—Inland waterways—
Harbors and ports—Irrigation works—Hydro-electric power
schemes—Mines and industries—Industrial suburbs.

X.—FINANCE OF DEVELOPMENT MEASURES

Realizable revenues—Taxable capacity as limiting factor of
public debt—Finance of (1) Commercial services and
works, (2) non-reproductive works, (3) education, (4)
public amenities—Forms and conditions of public debts.

XI.—ADMINISTRATIVE CONTROL OF ECONOMIC DEVELOPMENT

Necessity for a co-ordinating authority—Preliminary investiga-
tions—Surveys of resources—Necessity for experiment
and statistical record—Departmental reports—Provision
of funds and control of execution.

THE STUDY OF RURAL ECONOMICS IN SOUTH INDIA

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A new impulse was given to the study of economics in the Madras Presidency by the formation of the Madras Economic Association organised in 1912. The inaugural address was given by Sir Theodore Morison on January 16, 1913, with His Excellency Lord Pentland in the chair. In that address occurs the following passage, "H. E. Lord Pentland has already referred to the predominantly agricultural structure of society here, and my own perusal of the Census suggested to me a subject which may perhaps be dealt with in one of the learned papers of this society. It is a paper which has not yet been produced, but a paper which I want to read, a paper which I imagine this society or some society like the Royal Statistical Society in London may produce. I mean an account, sociological and statistical, of one typical Indian village. The author of the paper must take the most typical village he can, and then find out how many people live there, then he would analyse the way they made their living, what they did, how many were agriculturists, how many were tenants, how many were village

servants, and how many engaged in industrial occupations. I hope he would also find what their incomes are. The estimate of incomes is a difficult task, I recognise."

There were other subjects which Sir Theodore Morison also suggested for special study, for example, the indigenous system of banking of Nattukottai Chetties, and Industrial Guilds. But it was the economic survey of typical Indian villages upon which he laid most stress, and it was in this direction that the Madras Economic Association directed its first efforts. During the year 1913 Mr. C. D. Subramania Chetty and Mr. T. Krishnaswami Ayyar took up the work, and in the beginning of 1914 read papers to the Association containing economic surveys of the villages of Kolavur, Kizhaputhaneri, and Vanniyampakam. Although the original inspirer of this line of investigation in Madras was Sir Theodore Morison, a great deal of the credit of what has been accomplished is due to Sir Harold Stuart, who in the midst of his numerous and important duties found time to encourage actively the pursuit of exact economic knowledge.

Meanwhile another enquirer had been at work. Sir Theodore Morison's idea had also occurred to Dr. Harold Mann, Principal of the Agricultural College of the Bombay Presidency at Poona, and he more fully than any one else carried out the enquiry which was suggested by Sir Theodore Morison. He carefully selected what he judged to be a typical village of the Bombay Deccan, Pimla Soudagar. He secured the co-operation of eight assistants, and for a long period made an exhaustive survey with the object of ascertaining the exact economic condition of the village at the present time, its previous history, and the economic forces determining its probable future. Some of the facts collected in this inquiry formed the subject

of a paper read to the annual meeting of the Deccan Agricultural Association, which was published under the title "Economics of a Deccan Village" by the Izraelite Press, Poona. A fuller report has been published in the *Indian Journal of Economics*.¹

I came out as Professor of Indian Economics in the University of Madras in December 1915, and was fortunate in having an opportunity of meeting Dr. Mann on my way from Bombay to Madras. Like Sir Theodore Morison I had previously formed the opinion that in the study of Indian Economics the study of the village must take a very prominent place. I had to consider what resources were available for the University for assisting this work. In the University of Madras the study of economics is associated with that of History. It is subordinated to history in the examinations for degrees, and in the colleges of the University the teaching of Economics is mainly in the hands of professors appointed on the strength of their qualifications as historians. It appeared to me that in the first instance at any rate, I should have to appeal to students to take up the study of Indian Economics for its own sake, as something outside their work for a degree, and to utilise their vacations. It appeared to me that in every way the most desirable course practicable would be to ask students, if they were disposed to do so, to make an investigation of their native villages during the long vacation, and to draw up a series of questions to guide them in their enquiries.

The first step was to find out what questions to ask. In this I had the assistance of Mr. E. V. Sundaram Reddi, at that time a tutor in the Christian College, Madras. I went with Mr. Reddi to his native village of Eruvellipet in South Arcot, and spent four days endeavoring to see every possible

¹ Vol I., pp. 409 et seq. (December, 1916).

aspect of the village life. As a consequence I drew up a series of questions and sent the first copies to Mr. E. W. Legh, Collector of Salem, who succeeded in finding investigators to fill up the answers for one ryotwari and one zemindari village in the neighbourhood of Salem. I subsequently visited those villages myself and thus ascertained which of my questions were liable to be misunderstood. The Village Questionnaire, as revised by the help of this experience, was given to students who expressed a desire to use it, and as a consequence some 14 surveys of villages in the South of India are in my hands.

These surveys are, of course, of very varying merit. The students who undertook them varied, naturally, in industry and ability; the villages themselves equally varied in the amount of difficulty they presented. On the West Coast there is no village in the proper sense of the word. There is instead an administrative district over the whole area of which habitations are scattered indiscriminately, though possibly they may be grouped a little more closely in the neighbourhood of a temple. Then some "villages" are small, others are, so far as population is concerned, country towns; and with the best effort in the world it is not possible for a young undergraduate student during his vacation to make a satisfactory economic survey of a "village" with a population of 20,000 souls. In such a case as this, however, one had the consolation of knowing that the effort of the student would in no way be wasted. He might, or he might not, gather some facts of value; he would certainly gain a better understanding of economic fact than would be possible by a mere study of text-books and attendance at lectures. I may say here that the response which I received shows that the accusation sometimes made against students in Indian Universities that they take no interest in any

study for its own sake, but only for the sake of the examination marks which can be obtained by it, is considerably exaggerated so far as Madras students are concerned. When so much depends for an Indian student upon success in examinations it would be unfair to demand from him that he should seriously imperil his chances. Nevertheless, the genuine interest of students in economic studies and their readiness to pursue them when possible irrespective of the examination results is in my experience displayed to a most encouraging extent.

In the months of February and March 1916 I gave some public lectures in Madras which were well reported in the local press, and in which I emphasized the value of village enquiries. This appeal also brought a response. I was invited by Mr. A. J. Saunders, Lecturer in History and Economics in the American College, Madura, to visit that city; and by the organisers of the Kumbakonam Economic Club, and to deliver the inaugural address to that Association. In Madura I gave public lectures in the American College and in the Madura College; and Mr. Saunders and other students of economics in particular seized the opportunity of forming a Madura Economic Association, which some months later opened its proceedings with an inaugural address from Professor K. V. Rangaswami Aiyāngar of Trivandrum. Both the Madura Economic Association and the Kumbakonam Economic Club are endeavoring to arrange for village surveys more or less on my plan, and several such surveys have been carried out in the neighbourhood of Madura.

In the north of the Presidency Mr. A. P. Patro of Berhampur joined in the work, but proceeded on a different plan. His effort was in a given district to select what appeared to be a typical village, and in

the village to find a typical ryot. The choice of the ryot was made on a visit to the village after discussing the matter with the important men of the village. The ryot was induced to explain his circumstances to Mr. Patro, to give an account of his cultivation, his crops, his cultivation expenses, his subsidiary earnings, his expenses for food and other domestic purposes, the history of his family, and his conditions with regard to indebtedness, etc. The family budgets obtained by Mr. Patro were published in the "Hindu," and the "Indian Patriot," and he presented a selection of the budgets so obtained in a paper to the Madras Economic Association. Mr. Patro held that his inquiries proved certain definite and very serious conclusions. He held that it was demonstrated that the small ryotwari holdings in the Ganjam District did not, and could not, pay. The picture he presented was that of a congested district in which, by progressive sub-division of holdings, or by the increase in the number of members in an undivided family, the produce of the land was becoming insufficient to feed the cultivators adequately, and no alternative industrial occupation being offered on the spot, the only remedy available was emigration under very unsatisfactory conditions. Mr. Patro's data were challenged, and it was argued that different statements made to him by individual ryots were not always consistent with one another; that the figures of produce given were remarkably low and of cultivation costs remarkably high; and that the amount of rice and *ragi* asserted by the ryots to be necessary for food nourishment was very excessive. As a result of the discussion Mr. Patro expressed his intention of continuing his investigation and of modifying his method slightly by endeavoring to get budgets from several ryots, instead of one only, in each village studied.

The surveys of villages sent in by my students are now being prepared for publication. In anticipation of what I shall have to say hereafter I may say that one general conclusion that appears to me to be indicated is that the search for a typical village in Southern India, or in the Madras Presidency, is itself somewhat chimerical. No actual village can be typical in any complete sense; and in the partial sense in which it can be typical it is typical of one only out of numerous varieties. It was by the efforts of Sir Thomas Munro of the Madras Presidency that the extension of the permanent zemindari settlement outside Bengal was checked and ryotwari settlement introduced. Hence we have in the first place numerous zemindari villages scattered over the Presidency, in which on the whole the ryotwari prevails. Between two zemindari villages there will be the greatest variation in the relations between the zemindar and tenants. In one village I know the whole of the zemindar's income from the village is devoted to village improvement, to making roads, sinking wells, and planting trees. In another village the whole of the zemindar's income is spent in dissipation and vice. In one ryotwari village the pattadars let out all the land to tenants. In another practically all pattadars cultivate lands themselves, and between these two extremes all possible intermediate conditions can be found. Some villagers display much enterprise and readiness to adopt any promising agricultural innovation, others are intensely conservative; in some the principle of co-operation manifests itself, in others not. We have further ever varying conditions of soil and water-supply, with the consequent variations in the nature of crops produced. In some villages almost all the produce is consumed in the village itself; in others the land is mainly devoted to growing crops

for export. In a considerable minority weaving and other handicrafts play an important part in the economic life of the village; and among weaving villages there are those that produce very superior and expensive cloth, and those that produce only the coarsest; those in which hand-spinning has only recently died out, or even now lingers on, and those in which it is forgotten. Social and sanitary and educational conditions are equally variable. If it is possible to find typical villages, such discovery can only come as the result of a detailed study of a number of different villages. But that study is full of lively interest, and, I believe, of valuable instruction.

APPENDIX

SCHEME FOR SURVEY OF A RYOTWARI VILLAGE

General instruction.—Embody in your report the official information which is available, but endeavour also to test its accuracy and to correct it when possible. Throughout use some distinguishing mark to indicate whether your information is derived from official sources. Thus the letter 'O' can be used to mark official information, 'N' un-official, and 'N and O' official information, confirmed by non-official.

PRELIMINARY—

- (1) Survey number of village.
- (2) Name of village.
- (3) Taluk.
- (4) District.
- (5) General description of geographical position, and position in relation to any forests, rivers, hills, etc., which there may be in the neighbourhood.

A. POPULATION—

- (1) Total population of caste village.
- (2) Castes.

- (3) Number of families and individuals in each caste.
- (4) Number of children in families
 - (a) living
 - (b) dead

N.B.—A good way of getting this information is to ask parents how many children they have had and how many are still alive.

- (5) Number of homesteads.
- (6) A complete census of ages, if obtainable, is useful.
- (7) Give statistics of the births and deaths given in the village accounts, and try to ascertain to what extent they are accurate; and if defective, why so?
- (8) Population—men, women, and children—of Paracheri, given if possible in families, with number of dead in families.

Notes.—(a) Endeavour to give, if possible, the population according to the last two or more censuses.

(b) Use the figures so obtained to ascertain whether the population is increasing or decreasing, and if so, which sections of the population (caste and sex) show the increase or decrease.

(c) State the age you chose to distinguish between children and others. This should be 10 years or 15 years.

B. LAND—

- (1) Area of wet lands.
- (2) Area of dry lands.
- (3) Area of lands watered by wells.
- (4) Common waste.
- (5) Pasture other than common waste.
- (6) Woods and forests.
- (7) Fruit trees and scattered shade trees.
- (8) Tanks.
- (9) Wells.
- (10) Other sources of water supply.

Notes.—(a) The information under B can mostly be obtained from the village accounts, but some correction may be necessary. Procure if possible a copy of the village map. Add, if possible, a classification of wet, dry and well lands according to the amount of land assessment.

(b) The statistics under the several headings should be compared with similar statistics for a period anterior to the present by 10 or 15 years. The necessary information can be gathered either by enquiries in the village or from the Firka books of Revenue Inspectors. Such a comparison is important as showing the economic progress of the village and changes, if any, in the methods of cultivation, the standard of living of the people, in cattle rearing, etc.

C. OCCUPATION OF LAND—

- (1) Area cultivated by the landowner.
- (2) Area sublet and cultivated by tenants.

- (3) Number of cultivating landowners.
- (4) Number of non-cultivating landowners and their respective occupations.
- (5) Number of tenants who own no land.
- (6) Agricultural workers who neither own nor rent land.
- (7) Areas of holdings according to ownership.
- (8) Areas of holdings according to tenancy.
- (9) Rents in money or in kind.
- (10) Land Revenue (give total list of village and amount per acre for different qualities of land.
- (11) Particulars of people who combine agriculture with other occupations

Notes—(a) Give (7) and (8) in as much detail as possible

(a) Under (9) give as full information as possible both about the sorts of agreements that are concluded between the pattidar and the tenant, and also the amount of the rents, and what extras such as straw, vegetables, etc., are paid in addition to grain or cash rents. If landlord and tenant share the produce, explain how the list and costs of cultivation are shared, and whether the tenant has all the straw, and endeavour to calculate the actual value of the share of produce obtained by either party. Again, landowners and cultivators usually pay the village servants certain perquisites at the time of harvest, Pongal feast, etc. These should also be noted

D. AGRICULTURE

- (1) Area under each of the principal crops.
- (2) Area yielding one crop per annum.
- (3) Area yielding two crops per annum.
- (4) Area yielding three crops per annum.

N.B.—Give these statistics for a short series of years.

- (5) Customary crop cultivation, of wet, dry and garden lands respectively.
- (6) Types of plough used, and the number of acres cultivated per plough in wet, dry and garden land respectively.
- (7) Other agricultural implements.
- (8) Describe types of pumps or waterlifts used (no elaborate description is needed if they are of common types). Are oil engines used?
- (9) Is water sold for irrigation by one villager to others? If so, what price is charged?
- (10) Stock.—(a) Working oxen.
 (b) Cows.
 (c) Male buffaloes.
 (d) Cow buffaloes.
 (e) Young stock of above species.

- (f) Horses.
 - (g) Donkeys and mules.
 - (h) Sheep.
 - (i) Goats.
 - (j) Pigs.
- (11) Are ploughs or carts and bulls hired out? If so, give rates of hire.
- (12) Describe the customs with regard to feeding of domestic animals.
- (13) Manuring—
- (a) What percentage of the cattle dung produced is used as manure?
 - (b) What quantity of cattle dung is applied per acre of wet, dry and garden land?
 - (c) How is cattle urine utilized?
 - (d) Other animal manures.
 - (e) Green manure.

Under this head explain whether green manure is grown, or obtained from woods or forests.

- (f) Are chemical manures used? If so, how obtained?

(14) Garden cultivation.

Give here any information available not given under other heads.

- (15) Chief insect pests and methods of combating them.
- (16) Chief cattle diseases and methods of combating them.

Under heads (15) and (16) note particularly whether assistance is obtained from the Agricultural and Veterinary Departments.

- (17) How and where wood is obtained for fuel, implements, building, etc.?
- (18) What is the cost of cultivation per acre of wet, dry and garden land respectively?
- (19) Has there been any recent improvement in methods of cultivation, as single transplantation of paddy, seed selection of cotton, introduction of new crops, etc.? If so, how was such improvement brought about? Are the villagers disposed to adopt new methods if their utility can be demonstrated?
- (20) Do the villagers breed their own cattle, or purchase? If the former give as full an account as possible about their methods of breeding and rearing young cattle; if the latter state how the cattle are procured what breeds are preferred, where they come from, what prices are paid, and what becomes of the cattle afterwards.

E. THE VILLAGE—

- (1) Area of the village site.
- (2) Localization of castes.
- (3) Dwellings of depressed castes.
- (4) Types of dwellings, *e.g.* how many houses.
 - (a) in caste village.
 - (b) in paracheri.
- (5) Gardens adjoining dwellings.
- (6) Maximum distance of cultivated lands from home of cultivator.
- (7) Unsatisfied demand for building sites.
- (8) Site values.
- (9) Do the ryots exchange lands in order to get their lands continuous? If so, do they build and use field huts? To what extent are the lands of an average cultivator scattered about in small parcels?

F. SUBSIDIARY INDUSTRIES

- (1) Number of weavers.
- (2) Condition of the weaving craft:—What Yarn is used? What looms and winding implements? Do weavers co-operate at all? What evidence is there of growth or decay in the weaving industry? Give average earnings.
- (3) Is handspinning practised; if not when abandoned?
- (4) List of other crafts in the village giving when possible the proportion of working time spent on the craft, average earnings and any interesting features about the craft.
- (5) Give any information available showing whether any village industry is developing or increasing; or, on the other hand dying, decaying, or becoming less remunerative.

G. VILLAGE TRADE—

- (1) How do the villagers purchase commodities required?
 - (a) for industrial and agricultural use?
 - (b) for their own consumption?
- (2) Sale of village produce—
 - (a) Estimate the quantities of village produce sold out of the village.
 - (b) Describe the methods of sale.
- (3) Condition of village with regard to local roads, access to main roads, railways and commercial centres.

(4) Extent of co-operation in village trading.

(5) Further remarks.

Note.—Please make a special effort to get an accurate statement of the quantity of agricultural produce that is sent away from the village in an average year.

Also endeavour to ascertain if the poorer ryots sell grain at a low price immediately after harvest, and have to buy it back for their own food or for seed at a higher price later on.

Try also to find what proportion the price the ryot receives for his produce bears to the prices obtained in large markets.

H. ECONOMIC CONDITION OF VILLAGE—

(1) Customary rates of wages—(a) in money, (b) in kind.

Note what extra perquisites are given to the labourer in addition to his regular wage.

(2) Current prices of staple foods.

(3) Number of families which have made savings.

(4) Utilisation of savings—

(a) Agricultural or industrial capital.

(b) In Savings banks.

(c) On loans to neighbours.

(d) In jewellery.

(e) Other methods.

(5) Rural indebtedness.

(6) Number of padiyals and conditions of their service to creditors, stating amount of wages or allowances of grain, clothing, etc.

(7) Causes of indebtedness.

(8) Proportion of debtors who have liberated themselves from debt.

(9) Is there a co-operative credit society? If so, add a special appendix giving the fullest possible account of its origin, progress and prospects.

(10) Sources and extent of communal income, (*i.e.* income belonging to the village as a whole, and not to individual villagers).

(11) Expenditure of communal income.

(12) Administration and supervision of communal income.

(13) Give any particulars known about selling prices of land.

(14) Estimated annual expenditure on religious festivals.

(15) Estimated expenditure in recent years on new temples.

(16) To what extent is advantage taken of the Agricultural Loans Act, and the Land Improvement Loans Act?

NOTE.—The following statement will be found suggestive—"In villages interest is a most insidious poison and the damage it causes is generally not properly appreciated. It is only loans of large cash sums that are regulated by a fixed and

reasonable rate of interest such as 9, 12, or 15 per cent per annum. But a good deal of the borrowing in villages is done either in the shape of small sums of money or advances of food grain, seed grain and other commodities on credit, and it is the interest on these latter transactions that proves the most ruinous. If one stayed in a village in a district like South Arcot or Chingleput for a few days and made careful enquiries among the villagers, one will come across many cases in which ryots borrowed a single rupee for seed grain and bought eight Madras measures of seed with it on the understanding that at the harvest time *i.e.*, about 6 months thereafter the creditor should be paid back the rupee plus three Madras measures of paddy, the money value of which at harvest time is generally four annas. In other words, they agreed to pay 25 per cent more for the use of the money for six months. This high rate of interest does not of course prevail all the year round, but six months of such interest are enough to break any ryot's back. Further, all purchases of articles on credit carry very high rates of interest besides giving room to the exercise of much fraud on the part of the lender. Correct and detailed information as regards the rates and forms of interest paid on the several kinds of loans would afford valuable help towards the suggestion of means to overcome the evils of indebtedness."

I. SANITARY CONDITION OF VILLAGE—

- (1) Prevalence of Malaria.
- (2) Do. Cholera.
- (3) Do. Plague.
- (4) Do. Tuberculosis.
- (5) Do. Small-pox.
- (6) Do. Other epidemic diseases.
- (7) Do. Other endemic diseases.
- (8) Estimated rate of infantile mortality.
- (9) Snake bites.
- (10) Medical assistance available.
- (11) Insanitary habits.
- (12) Prevalent customs with regard to—
 - (a) Infant marriage.
 - (b) Purdah.
- (13) Nature and quality of water supply for drinking and domestic purposes.
- (14) Do the villagers bathe and wash clothes in the same stream or tank as that used for drinking?

J. EDUCATION—

- (1) Number of schools.
- (2) School accommodation.
- (3) Educational character of schools.
- (4) Number of boys in attendance.
- (5) Do. girls do.
- (6) Average duration of school life.

- (7) Percentage of adults able to read the vernacular.
- (8) Do. to write the vernacular.
- (9) Do. to talk English.
- (10) Do. to read English.
- (11) Do. to write English.
- (12) Number of pundits or specially educated persons.
- (13) Are there any adults who have learnt to read, to write or to cipher who have lost such ability after leaving school?
- (14) Number of boys and girls who have proceeded to more advanced schools elsewhere.
- (15) How have their school expenses been defrayed?
- (16) Have boys from the village who have passed through secondary schools obtained satisfactory careers later on?
- (17) Have any gone to an Agricultural College?
- (18) Have any boys who have received a good education settled down in their own village? If so, how do they use their education?
- (19) How many books and of what character in the village?

K. VILLAGE ADMINISTRATION—

- (1) Panchayat.
- (2) Village Administration.
- (3) Sanitary Administration.
- (4) Police Administration.
- (5) Contact with higher authorities.
- (6) How much crime has there been in recent years?
- (7) Are any of the villagers engaged in litigation and if so, why? Are any in debt in consequence of litigation?
- (8) Are offences and civil disputes dealt with in the village without resort to the Courts?

L. HISTORY AND PROGRESS OF VILLAGE—

- (1) What evidence is there to show either economic deterioration or economic improvement in the past?
- (2) What opportunities does the village seem to have for economic improvement? Note specially the possibility of extending the area of irrigated lands. Could more wells be sunk with advantage? If so, why are they not sunk?

M. GENERAL—

If opportunity offers illustrate by giving a more detailed account of the occupations, income, expenditure and the general

condition of a few typical families. Add any information which appears to be interesting and significant not asked for in this form.

As for instance, information as to the decrease of land held by different castes, reasons why people buy land and why they sell it, the emigration from the village either to cities or to foreign countries, why the emigrants go and whether they return, what effect such movements have upon the economic, intellectual, and social life of the village; what new expenditure on luxuries or comforts is becoming customary; what other changes there are in the standard of living; and if there is any change in custom with respect to marriages or religious observances.

THE UNIVERSITY MILITANT
DEPARTMENT OF SOCIAL
ECONOMICS

FIRST EXAMINATION PAPER FOR
PROFESSORS OF ECONOMICS

*(Books may be used freely. Time allowed: THREE MONTHS,
or more if required)*

EXAMINER, PROFESSOR PATRICK GEDDES
OUTLOOK TOWER EDINBURGH
DIRECTOR OF THE CIVIC EXHIBITION

I

1. The European tramp is observant and even reflective, and in India the blind beggar in the market place is often devoted to the meditative life. Taking leading thinkers of many schools of political economy—Smith, Malthus, Ricardo, St. Simon, Fourier, the two Mills, Marx, Jevons, the Austrians, Edgeworth, Walras, Stirner and Bakunin, as also the German socialists of the Chair, what can we find in their teaching which might not have been elaborated by individuals such as above suggested? Is not their excessive dominance by conceptions of money value, etc., etc., essentially akin to the reflections of the first of these especially?

2. Consider now the actively constructive peasart in Europe or in India. Realize him as devoted to

his fields and live stock, to his home with its small garden and fruit trees, to his fellow villagers and to his tradition of folk culture, artistic, poetic and religious. How would this simple thought-world of his be developed as an economic system, assuming him to become educated enough to construct this without losing his present efficiency or abandoning his ideals?

3. Suppose now that besides the peasant's eldest son, who succeeds him in his holding, he has others. The second son becomes a manufacturer, the third a money-lender, the fourth a state official, the fifth a lawyer, the sixth a soldier, and the seventh an artist. Granting that political economists have dealt, more or less exhaustively, with the first named five of these, you are asked to outline a corresponding economic treatment for the soldier and for the artist, indicating the previous literature on these subjects, if any. How do you explain these omissions, if not on the hypothesis of question 1?

II

4. Economists have been increasingly introducing mathematical conceptions and graphic treatments, and with advantage, but why not correspondingly the conceptions of physics? Were not the Physiocrats struggling towards these? Jevons in his enquiries as to coal resources and solar crises, and now also endeavours like that of the American Commission on Resources, are evidences that the subject has once and again come up; but do we not need a realistic study of society in terms of the conservation of economic energies? If so, give an outline of this, with indication of the changes which such economy would produce upon current conceptions, *e.g.* of money-making, and of empires.

5. Every economic survey discusses Malthus, but why not also Darwin? Show that his doctrine, commonly thought restrictedly biological, is really and fundamentally the projection of current mechanical improvements, and their associated economic theories, of competition, etc., upon the evolution of the organic and human world. Can any exception be taken to this view, that Darwinism was and is the very flower of classic economic thought, applied to other fields?

6. Estimate the bearing of later biologists upon economic theory, *e.g.*, Weismann, Kropotkin, Bergson. Returning to the psychological treatment of economics—how far can the traditional doctrine of hedonism be maintained in face of the criticisms of evolutionists, *e.g.* that progressive processes, from birth and teething onwards, are frequently painful, while those of disease, vice, and deterioration are frequently pleasurable, *e.g.* *spes pthisica*, drunkenness, opium-eating, etc.? Does not the introduction of a *future* element involve the replacement of the hedonist theory by a distinctly evolutionary one?

7. Give references to economists who have endeavoured to clear up the position of economics within the general field of sociology. Also compare the fields of sociology and biology, with their respective sub-sciences; so as to make the above position of economics still more clear, as by comparison with the economics of animal life and societies.

8. How can it be clearly explained to the student that economics is related to (a) Geography, (b) Anthropology, (c) Elementary Psychology, as of experience, pleasure and pain, etc., (d) to a deeper Psychology of Ideals—of Philosophy, Science and Religion, Doctrine and Symbol, of Imaginative and Creative Art? How far have recent economic schools encouraged (or discouraged) these?

III

9. Taking for granted the customary treatments of economic progress as having widened from local and regional production and markets to great industries and world markets, how far can you indicate possible changes of a converse nature, *i.e.*, towards the renewal of *regional* developments, and the improvement of *minor* cities as well as great ones?

10. Given the labouring classes, and the existing contrast between their valuation by the religious and philosophical standards of the past and by the political standards of the Revolution, and their market value in the present, can you suggest any way by which the *valuation of the labourer* may be substantially improved upon evolutionary lines? Can any substantial improvement of conditions be imagined without this? If so, how?

11. Economists have usually assumed the value of "*Education*", in its customary forms of the "three R's", and later of "technical education", usually urban and mechanical, with the addition of (so-called) design. Some educationists however advocate the education of the "three H's" (heart, hand and head), giving rise and scope to expressive and creative arts accordingly, as even best calculated to evoke mechanical skill and wealth-producing efficiency. State the arguments against and for this latter view.

12. Indicate the significance of *Fruit-growing* (a) in old civilizations, (b) in present possibilities.

13. Recent anthropologists, as notably Frazer, have emphasized the co-relation of religion with agriculture and fertility, *i.e.*, with economics. Reverse this process, by indicating, say from rice, date, vine, and olive, the corresponding cultural developments. Indicate the corresponding future possibilities, *e.g.*, for banana and potato.

IV

14. Discuss the division of labour between the sexes, (a) in early societies and simple occupations, hunting, pastoral, agricultural, etc. Criticise in these connections Otis Mason's view of woman as inventor. Continue the estimate of the division of labour of the sexes in historic times—classical, medieval, renaissance; and for patricians, plebeians, slaves, etc. How far are such historic conditions traceable in modern times, and for good and evil?

15. Discuss the position of woman in the various machine industries and in Paleotechnic conditions generally. Thereafter estimate the changes in the economic activities, occupation, remuneration and status of women as influenced by the present war. How far may these afford indications towards reconstruction of their status, and, if possible, on more advanced (Eutechnic) lines than heretofore?

16. The fundamental division of labour between man and woman is commonly generalized as towards production and consumption and saving respectively. Illustrate this by comparison of text-books recently produced by teachers of the London School of Economics, e.g. Professor Cannan's "*Wealth*" and Miss Atkinson and Mrs. Mactaggart's "*Introduction to Economics*." Systematise more clearly these essential economic perspectives of the sexes, and indicate how this bears on the claims and possibilities of women.

17. Has any economist as yet made an adequate study of material production and consumption analogous to those made by naturalists of secondary sexual characters? If not, supply this, and illustrate it by means of a myth of the *isolated couple* corresponding to that of the economic man,

18. Estimate, either from history or present observation, or both, the economic evils and disasters associated with the relations of the sexes. Consider with various colleagues, *e.g.* those concerned with psychology and ethics, with history and poetry, with gynecology, with morbid psychology and criminology also, the possibilities of mitigating these evils upon the economic plane, in interaction with those of the others. (In summary and development of the preceding five questions, they may, all and more, be sub-sumed under "*Cherchez la femme.*")

V

19. Finally; recalling the preceding series of questions, what is your general impression of the economic level of the proceedings of the current Industries Commission? That is, how far do its witnesses and its questioning of them encourage you to hope a really adequate treatment of Indian economic problems in the near future, or in what respect, if any, discourage you? If the latter, indicate what evidence you would propose to bring before them.

20. State also what you understand by the term "Social Finance", and what (if any) fresh applications of it you would recommend, in India or in Europe. Criticise those recently recommended by Charles Ferguson—"The Great News" (New York, 1916).

THE RELATION BETWEEN INTEREST AND DISCOUNT

D. A. BARKER, I.C.S.

In considering the causes which affect the rate of discount it is customary amongst business men to lay undue stress upon the factors of supply, whereas, from the scientific point of view, the factors of demand are of equal if not greater importance. It is, of course, true that imports and exports of gold, preparation for dividend payments, the release of dividends and other similar factors do affect the rate of interest, but to a great extent the movements so caused are essentially temporary and theoretically unimportant. Assuming that exports and imports of gold in respect of a particular country are approximately equal over a given period and that banking and business habits in regard to reserves kept and forms of currency used remain unchanged during that period, the supply of money for discounting will remain also practically unchanged. In the absence of any great alteration in banking practice bankers as a body will keep a fairly definite proportion of cash to current accounts. In the absence of any marked changes in the supply of gold, then, the supply of cash, and therefore of current accounts, will be approximately

constant. And it is upon the sum total of current accounts that the supply of money for discounts chiefly depends.

Looking at the question from the point of view of demand, however, we see that the determining factors are of a less simple nature. The credit sold in the discount market is, so to speak, the floating capital of commerce, always available for transfer at a minimum of expense from one industry to another. It will be particularly in demand for sudden expansions of trade, and will be equally at a discount in times of sudden contraction. These factors are of a nature less evident and less capable of statistical verification than the factors of supply and have therefore attracted less attention than they deserve.

But if we look again beyond mere temporary fluctuations we shall find that on the whole and in the long run the rate of discount will vary with the rate of interest. The rate of interest again is determined by the opportunities for the investment of capital and the amount of capital already invested or being invested. Thus during the first decade of the present century there was a marked increase in the average rates of interest and of discount despite the vast outpouring of gold from the mines. If the factors usually regarded by business men as governing the rate of discount were alone considered no cause could be found for a rising rate of discount amidst floods of new gold. It may be argued theoretically that large additions to the gold supply of the world will necessarily enlarge the cash holdings of bankers and will thus enable them to give more loans, to increase current accounts and thus to reduce the rate of discount. It should not be overlooked, however, that, concurrently with an increase of cash and of current accounts will come a rise of prices which will

necessitate more (monetary) capital for all new enterprises and which may thus totally destroy the tendency to a decreased rate of discount. Similarly a decrease in the supply of gold will mean *ceteris paribus* a decrease in cash holdings, a rise in the rate of discount and eventually a fall of prices which will enable monetary capital to do more work and will thus tend to a fall in the rate of discount. But changes in the flow of gold exert only temporary impressions on the rate of discount, and cause it to fluctuate round a point which is determined by the rate of interest.

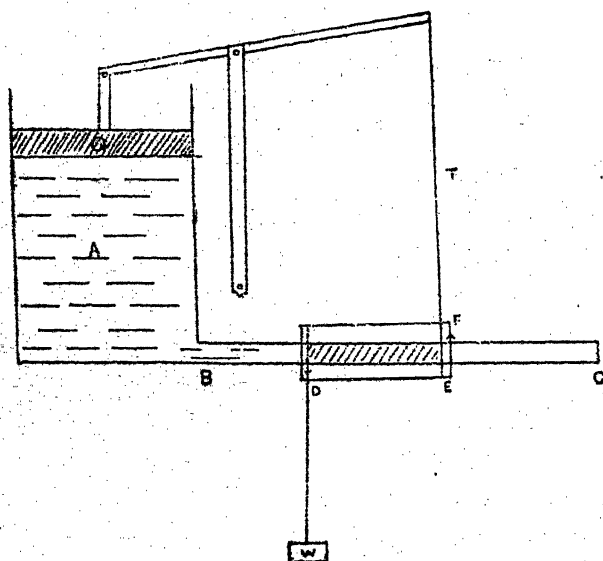
In the *Economic Journal* (of London) for October 1906 I described an hydraulic model illustrating various monetary phenomena.¹ On that model the connection between the rate of interest and fresh supplies of gold was shown by a method which did not show sufficiently the influence of the rate of interest. I propose now to describe a model which shows this connection more correctly (see figure overleaf).

Let A be a cylinder closed at the bottom end and open at the top, except for a piston-head G, closely fitting into the cylinder, but able to move up and down. Into the cylinder A runs a pipe CB. DE is a cylinder concentric with the pipe CB, but so arranged that it can revolve freely round its axis. Inside the pipe CB, and attached to DE, is a turbine, so that when water passes from C to B it causes the cylinder DE to revolve in the direction EF. At another point on DE is attached the weight W in such a way as to tend to revolve DE in the opposite sense.² To the piston-head G is attached

¹ This model is also described in the writer's *Cash and Credit*. Cambridge University Press.

² This string, as also the string T, is wound round the cylinder DE several times before being attached to it. Neither string, therefore, is fixed in length, as might appear from the diagram.

the arm of a lever, the other end of which is attached by a string T to the cylinder DE, so that a downward movement of the piston-head will tend to revolve DE in the direction EF. It will thus be seen that the pull of the weight W tends to pull the piston-head G upwards, whilst a downward movement of the piston-head will tend to pull the weight W upwards. Now suppose the cylinder A and



the pipe CB to be full of water. Let this water represent gold, and let the flow of water into A represent the import of gold. Then the height of the piston-head, or the level of water in A, will represent the level of prices, whilst the area of the end of A represents the volume of trade. The pull exerted by the weight W represents the rate of interest and the pull on the string T represents the rate of discount.

We thus see that an influx of gold into A will, other things being equal, raise the level of prices;

but such an influx may well be counteracted by a fattening of the cylinder, *i.e.*, by an increase in the volume of trade. But what will be the effect of a flow of water through the pipe from C to B? Normally, when no other forces are at work, the twist exerted on DE by the weight W will be transmitted to the string T, so that the pull on both strings will be equal; *i.e.*, the rate of discount will be equal to the rate of interest. But when water flows from C to B it will act on the turbine inside the pipe and exert a twist on DE in the direction EF, that is, it will help to bear the pull of W; or, in other words, the strain on T will be lessened, and the rate of discount lowered. *When once the water has passed into A and the flow has ceased*, G will be a little higher than before, and W a little lower, but the pull on T will once again be equal to the pull exerted by W. Translating into the language of the money-market we may say then, that while gold is flowing into a country the rate of discount will be thereby reduced. Once the flow of gold has stopped, however, the rate of discount will again become equal to the rate of interest, though the level of prices may have been permanently raised. Similarly when water flows out of the cylinder it will act on the turbine in such a way as to twist DE in the direction FE and will thus increase the tension on T. In other words gold flowing out of a country will temporarily tend to raise the rate of discount. But once the flow has ceased equilibrium between the rate of discount and the rate of interest will again be established.

HIGHER ECONOMICS COURSES

I.—MADRAS UNIVERSITY

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In the University of Madras the highest degree that at present is granted, that of M.A., is conferred after the lapse of a certain time without further examination to students who have taken their degree of B.A. in Honours. For the student of Economics the examination to be prepared for is that for B.A. (Honours), Branch V, History and Economics. The syllabus for this examination was overhauled in 1915 by the Board of Studies in History and Economics.

The old syllabus was marked by extraordinarily wide options. Six subjects had to be taken, three from a group of eight, and three from a group of six. From the point of view of the organisation of economic studies the most striking feature in the Regulations was the fact that the highest degree of the University in Economics could be taken by a student who did not offer any Economics at all, and such a student was not invited to answer a single question either in Economic Theory, or Economic History, or any other branch of economics whatsoever.

The new regulations which were drawn up by the Board of Studies avoided such very large options. The

principle had been laid down by the Senate for the Board that some knowledge of Indian History should be compulsory. The Board held that certain other subjects, by parity of reasoning, should also be compulsory, and the regulations which they submitted to the Senate in March 1916 prescribed that the student must in future take (1) Indian History, (2) British Constitutional History, (3) Economics, (4) Political Science; and he has two options from a list of subjects of which Economic History is one but all the others are in general History and Political Science.

After a considerable debate, in which a proposal to refer the subject back to the Board for reconsideration was defeated by a narrow majority, the Senate approved of the alteration and forwarded it to the Government for confirmation. A protest was lodged by certain members of the Senate against confirmation, on the grounds (1) that the B.A. degree and Honours should allow of very detailed specialisation, (2) that the change was inconvenient to mofussil colleges, (3) that compulsory subjects required more time than optional subjects, and that therefore the increase in the number of compulsory subjects made an increased and excessive demand upon the students. It was urged that it was impossible for students in three years to attain a high degree of competence in Politics, Economics, Constitutional History, and Indian History.

I was dissatisfied with the new regulations, although they appeared to me to be on the whole an improvement on the old ones, and I seized an opportunity that presented itself of discussing the subject with members of the Government while the confirmation of the new regulations was pending. It was clear that there was a good deal of difficulty in securing any considerable advance in the organisation of the University for the furtherance of economic

studies in the immediate future. Economics had entered into the University curriculum as an addendum to History. The consequence was that throughout the colleges affiliated to the University the teaching of Economics was ordinarily assigned to teachers selected for their qualifications in History. Although there are some teachers who have devoted much time and thought to the subject, yet on the whole there is a tendency among teachers and students to regard Economics as a subject to be studied by diligent perusal of certain text books, among which Professor Marshall's occupies a very conspicuous position. Until recently there has been little recognition of the fact that economics is essentially a field study, which can no more be understood without scrutiny of economic fact than can Botany without looking at flowers.

One small amendment was secured at the November meeting of the Senate. It was decided that there should be an additional option of a special economic subject. A student therefore can to a certain extent specialise in Economics by selecting the options of special subjects in Economics and Economic History, and in this case, three out of the six papers are in Economics, other three being Indian History, English Constitutional History and Political Science; there also being an essay which ordinarily gives an option of an Economic subject among others.

There is a widespread desire in the South of India for a much larger development of University teaching in economics and for a fuller recognition of the subject in the University examinations. Among those, however, who are most closely concerned with the administration of the University, it is held that these developments must be postponed until the conclusion of peace removes the difficulty in the way of getting out additional teachers. A special committee was

appointed by the Syndicate in November 1916 to consider the situation and to draft proposals. The committee agreed on its report, and this was then submitted for consideration to the Board of Studies in History and Economics, which however did not meet early enough for the matter to come again before the Syndicate in time for the meeting of the Senate in March 1917. The scheme of the special committee is therefore not yet public; but it is hoped that as soon as sanctioned by the Senate it will do much to encourage Economic studies in the University of Madras.

II.—ALLAHABAD UNIVERSITY

PROFESSOR H. STANLEY JEVONS, M.A., B.Sc., F.S.S.
UNIVERSITY OF ALLAHABAD

The Prospectus of the University of Allahabad for 1919, recently issued, sets forth the syllabus of the new M. A. Course in Economics which will come into force in that year. It is a great advance on the existing course and introduces some new principles; hence it will not be out of place to draw attention to it in this *Journal*. By way of introduction a brief description of the present course of study and examinations will be of service in order to emphasise the contrast.

The current Prospectus for 1918 contains a syllabus of the present M. A. course, which is substantially the same as for the past four years. It runs as follows:—

POLITICAL ECONOMY

There will be six papers. Candidates must offer themselves for examination in the subject-matter of any three of the following papers

at the Previous Examination and in that of the remaining three papers in the Final Examination:—

No. 1.—Theory, Scope and Method of Political Economy.

No. 2.—Socialism, Trades Unions, Factory System, Trusts, Co-operation.

No. 3.—Money, Foreign Exchanges, International Trade.

Nos. 4 and 5.—On Indian Economics.

No. 6.—Essay on an Economic subject.

Students are recommended to visit, under competent guidance, a large mill driven by power, an engineering yard or workshop, also two villages, in the first of which a co-operative Credit Society exists, while in the second there is no such Society. The assessment statements of these villages must also be studied on the spot (copies of assessment statements can always be had at the office of the Collector of the district).

The first point to observe is that the choice is given of taking at the examination ending the first session of M.A. studies *any* three of the six papers. This practice, adopted to allow colleges to teach subjects in alternate years, is in itself exceedingly bad, for it means that the subject matter of each paper is studied without relation to that of other papers. For example, it would be possible for students to complete their studies on Indian Economics, or on International trade, before they began economic theory; although, whenever possible, colleges arrange to repeat the general course (Paper I) each session. Again, economic theory occupies too little of the students' time and attention; for in the examination only two-thirds of one paper is devoted to it out of six. Thus Indian economics is degraded to a mere descriptive study of existing economic conditions, assuming but little more knowledge of theory than is necessary to pass the B.A. Further criticisms which may justly be levelled at the existing course are that the very important subjects of economic history and statistics are totally omitted, and that no sort of practical study, such as definite

inquiries in the field and exercises in the handling of statistics, are insisted on. It is true that the above recommendation to students to visit mills and works and two villages was inserted a year ago; but such practical studies ought to be done by B.A. students, and there is no test that the M.A. students do them.

The new course on the other hand has all the papers arranged in a consecutive order of study; it gives due prominence to economic theory, and it includes statistics in the second year's work. In order to give greater attention to economic theory and statistics, without reducing the importance of other sections of the subject, it was necessary to increase the total number of papers set to four instead of three in each year. They are thus set forth in the prospectus for 1919:—

ECONOMICS

For the Previous Examination all students take the same course but for the Final they choose between courses A and B.

PREVIOUS M.A. EXAMINATION

There will be four papers:—

Paper I.—Theory of Consumption and Exchange, Scope and Method of Economics.

Paper II.—Theory of Production and Distribution, International Trade.

Paper III.—Money, Banking, Foreign Exchanges.

Paper IV.—Finance, Public and Joint Stock, Industrial Organization.

In each of the above papers the candidate will be expected to choose his illustrations and examples more often from Indian than from Foreign conditions, except when the facts to be illustrated are not known in India.

FINAL M.A. EXAMINATION

Course A—

Paper I.—Advanced Economic Theory (Wages, Population, Profits), including simple Diagrammatic and Mathematical treatment, and History of Economic Theories.

Paper II—*a.* Social Economics, Labour Problems, Housing Reform, Standard of Living, Trade Unions.

b. Social and Commercial Theories, Laisser Faire, Socialism, Syndicalism, Free Trade, Protection, Imperial Preference.

Paper III.—Administration, Rural Economics and Industrial Organization in India.

Paper IV.—Essay.

Paper V.—*Viva Voce* Examination.

The above to be studied in relation to Indian as well as to European and American conditions.

Course B—

Paper I.—Advanced Economic Theory (Wages, Population, Profits), including simple Diagrammatic and Mathematical treatment, History of Economic Theories—(same as Paper I of Course A).

Paper II.—Theory and Practice of Statistics.

Paper III.—Essay on Economic Theory.

Paper IV.—Special subject taken in detail, *e.g.*, Irrigation or Coal Trade, or Cotton, or Rents. The subject to be specified by the University Professor of Economics twelve months before the date of the examination.

Paper V.—*Viva Voce* Examination.

Note-books of Practical work, and four essays done during the session to be shown up and passed by examiners with a certificate of the University Professor that to the best of his knowledge the essays are the candidate's own work.

It will be observed that there are two alternative courses for the Final Examination. Course A has been devised with the object of teaching being given in the affiliated colleges under the University upon much the same lines as at present. On the other hand, Course B is so arranged that it will be possible only for students to take it who study in the Economics Department of the University, where it is intended to start special courses of lectures, and a course of practical work in statistics, beginning with the Session 1919-20. The great advantages of the teaching and examination being closely co-ordinated will thus be realised for this particular course.

It cannot be claimed for the revised courses for the M.A. Economics that they are by any means perfect; they are, like many other things, the result of a compromise. The ideal would have been to re-arrange the entire course in both years completely on the lines now adopted for Course B, that is to say, insisting in all students' working in the Department under the University Professor, doing practical enquiries, and learning to handle statistics from the beginning of their studies. All students for the M.A. would thus have come under the system of an examination co-ordinated with the teaching, and would have attained a knowledge of the value of books by having learnt how to handle the facts and realities which lie behind them. It is very useful, however, to have these principles recognised in the new course, and it would hardly be possible with the existing organisation of the University to obtain any greater advance at the present time.

A further striking change in the Prospectus is the abolition of the list of books recommended for study in connection with each paper, on the ground that students of M.A. standing should not be dependent on particular text-books. In place of the recommended books the Board of Studies have prepared, and printed in the University Prospectus for 1919¹, a classified list of more than one hundred books regarded by them as standard works, which the M.A. student ought to consult and to read so far as may in his judgment be necessary and his time permits. The list will be revised from time to time, and it may be taken as the nucleus of a library of books on economics. Certainly these books ought to be in the Library of every College affiliated to the University in economics up to the M.A. Standard.

¹ To be obtained from the Pioneer Press, Allahabad; price As. 7 by V.P.P.

Working for the M.A. degree in economics has not usually been regarded by students as a whole time occupation. Some have read for law at the same time or for another M.A. subject such as History or English. With the new course of 1919 this will hardly be possible; for the standard will be considerably higher. On the other hand the students who obtain the M.A. degree will no longer be so poorly equipped in knowledge of economics as they are now. Two years of thorough study will give them a grasp of the subject, and a confidence in their understanding of it, now hardly ever attained.

CURRENT NOTES

Nearly nine months having elapsed since the last Current Notes were written, we have the opportunity of reviewing what has proved to be a striking period in the history of the finance and currency of India. The outstanding features are the success of the War Loan; growth of military expenditure on account of the British Government; an enormous absorption of silver by the population at large; the startling rise of the price of silver, leading to the raising of exchange to 1s. 5d.—a figure which has not been touched for the quarter of a century—and to the Ordinances whereby Government compulsorily acquires all imports of gold or silver; and finally the issue of the one rupee notes on December 1st, 1917, the increase of which is already assured.

As a result of energetic canvassing for the War Loan, and of special provident fund schemes and sweep-stakes in addition to the ordinary investment, the subscriptions to the War Loan amounted to 38 crores on 31st July. The Post Office section received subscriptions which by 10th October amounted to

Rs. 3,92,33,250. The subscription to the Post Office section and Cash Certificates has continued open and the total figures of subscription from the commencement up to early in October are as follows:—

	Rs.
Main Section	38,36,37,100
Treasury Bills received in England	1,65,61,200
Post Office Section	3,92,33,250
Cash Certificates	8,13,20,195
Total	<u>52,07,51,745</u>

The rapid rise in the price of silver lately has created a good deal of alarm and misgiving in the minds of the illiterate. The Ordinance of the Indian Government requisitioning silver landed in India at 5 per cent below the price of bar-silver in London was probably a contributory cause to the speculation which developed in the silver market; and the price jumped up from 40*d* to 42*d*, to 44*d* and to 55*d* per oz in September. The present price (December) is over 43*d* per oz., and it does not seem likely to go back to its old level. In order to keep currency on a sound basis the Government of India has acted wisely in prohibiting private trade in gold and silver. The exchange rate of 1*s.* 5*d.* may become a semi-permanent feature of the Indian currency system; but the rate may even go up to 1*s.* 6*d.* or above it if war continues much longer.

We regret having to record the untimely death of another Professor of Economics, Mr. J. E. Gately of Lahore Government College, who was wounded on 7th June, 1917 and died of his wounds on 13th June

1917. The late Professor Gately was a graduate of Liverpool University, where he took a first class in the Honors School of Economics. He was Professor of Economics for sometime at Agra College, before entering the Indian Educational Service to take up a similar post in the Government College, Lahore, which he joined on the 3rd of January 1912. He joined the Indian Army Reserve of Officers on 15th February 1915, and was sent to the 25th Cavalry. After sometime he left with horses for France and was placed in charge of a camp at Marseilles. He was then transferred northwards to Rouen, and later joined the Machine Gun Corps, where he was in command of a section when he was wounded. His loss is gratefully felt both by his students and his colleagues on the staff, as well as by his friends outside the college. A memorial meeting was held in the Government College on the 11th of October, 1917, and it was resolved to raise subscriptions for a portrait of the deceased to be placed in the College Hall.

The Tenth Conference of the Board of Agriculture for India has just been held at Poona from December 10th to 15th, 1917. The Board consists of all senior officers of the Agricultural Departments of the Government of India and of the various Provinces; and such conferences are usually held every alternate year. Non-official persons having special knowledge of the subjects to be discussed are usually invited to be present as visitors, and it is gratifying that the experiment made the first time this year of inviting economists to be present was pronounced by the Chairman, Mr. J. MacKenna, I. C. S., C. I. E., Agricultural Adviser to the Government of India, to have been a success. The first subject to be discussed was the un-

economic size and distribution of holdings of agricultural land in many parts of India. The Hon'ble Mr. G. F. Keatinge, dealt with the minute subdivision of holdings in the Bombay Presidency which has resulted from the Hindu and Mohamedan laws of inheritance. The next paper, by Professor Jevons, was on "The Consolidation of Agricultural Holdings in the United Provinces". This paper will be published as a *Bulletin of the Economics Department* of the University of Allahabad. Another subject of interest to economists discussed at the Conference was the question of the adulteration of agricultural produce exported from India and how to check it.

We are glad to notice that a Conference of Economists will be held in Calcutta under the auspices of the Bengal Economic Association on the 3rd of January, 1918. This Conference is the first of its kind, and this opportunity of interchanging opinions will be useful for those interested in the study of economics. The program is arranged to cover two days, of which the first will be devoted to papers on the industrial development of India, and the second to papers dealing with the appreciation of silver and the Indian currency problem, and a few miscellaneous subjects. On the first day no less than three papers, by Professors Stanley Jevons, J. C. Kydd, and E. A. Horne, will deal with the Labor Question as affecting industrial development in this country, whilst Professor Gilbert Slater will deal with "Industrial Development in South India"; Professor A. J. Saunders with "The Economic Development of a South Indian Village"; and Professor A. R. Burnett-Hurst with "The Future of the Cotton Industry." It is to be hoped that a similar conference will in future be held each year in a different centre.

REVIEWS OF BOOKS

RELATING TO INDIA

The Economic Life of a Bengal District. A Study by
J. C. JACK, I.C.S. Oxford: Clarendon Press. pp. 158.
Price 7s. 6d. net.

It is a commonplace remark to make that economic conditions vary widely from district to district in India, yet the number of studies confined to a district, the purpose of which "is to explain how the people live, to analyse their income and expenditure, and to examine the burden of taxation and indebtedness which they bear" is remarkably small. It is refreshing to read a book on Indian economic conditions which does not lose point and life in the hazy economic generalizations of an Empire.

Mr. Jack was settlement officer in Faridpur from 1906 to 1910 where he had ample opportunity of making the investigations, and it is the economist's good fortune that he made good use of his opportunities. The book was written in 1915 on the eve of his taking up duties as an officer in the artillery. "The staff by which the record-of-rights was prepared in the district of Faridpur, consisting almost entirely of young and eager graduates of the universities, was well fitted to supplement its task by such economic investigations. Each of these young graduates spent several months at one spot in the course of duties which engaged him in enquiries into the holdings of all the cultivators, into the capability of the soil and into the relations of tenants, both legal and customary, with their landlords. He obtained a vast amount of information concerning all the families of the village and frequently saw all the villagers and made visits to their homesteads." It

was through such a competent staff that the material was collected. The staff was supplied with forms to be filled up and with careful instructions concerning the method of conducting their investigations (see Appendix).

The first chapter is concerned with a description of the district and its inhabitants. It shows that Mr. Jack's knowledge of the people was both deep and sympathetic, and he has written interestingly on this subject. I shall give a few quotations.

"Faridpur itself contains an area of 2,464 square miles and a population of 2,121,914 persons. It is therefore as large as Devon and contains more people than any English county except Lancashire and Yorkshire . . . the population is almost entirely rural . . . the true urban population is not more than 20,000. There are no industries, so that the entire population, with insignificant exceptions, is dependent directly or indirectly, upon the produce of the soil for its livelihood: yet the population is nine hundred to the square mile, far heavier than in any agricultural tract of Europe and almost as heavy as in any industrial tract of the same size." It is heavier still in some of the adjoining districts of Bengal. The district divides naturally into three parts; the north where the land is above the flood level and is already formed; the south east which is still in process of formation, being built up by the river silt; and the south west which for a greater part of the year is a vast lake. In the north of the district "the population clusters along the banks of the old water courses, which are always fringed by a thick belt of fruit and other trees . . . Away from the streams villages are found chiefly in the centre of the depressions, where houses have been built only after mounds have been raised to place them above flood-level." In the south east of the district "very little of the present land has been in existence a hundred years and not very much for more than fifty years . . . Probably there has been land and population in all this country for five centuries or more . . . but the homesteads are new and orchards of well-grown trees are rarely to be seen." In the south west "the whole land is a vast marsh, yet able to sustain a large and growing population . . . The dismal swamp now contains 800 people to the square mile. For eight months of the year the country is a lake, 700 square miles in extent, whose surface

is broken only by the village clumps and by the two strips of land which mark the course of winding streams; in the other four months large parts dry up and enable crops to be grown upon them." Such are some of the features of this district. Mr. Jack then goes on to describe the homestead, with its separate huts, built of bamboo and mat, round a common courtyard. He gives a number of diagrams showing these, and also many interesting details of the uses and of the construction of the huts. A large number of the cultivators roof their huts with corrugated iron, especially along the railway and steamer routes. The furniture is scanty and generally the rooms are absolutely bare, without attempt to paint or decorate with pictures. There are no windows of glass. "In truth the absence of internal decoration and of furniture is not a question of money, but a question of taste. The wealthiest Bengali who is untouched by foreign influences keeps as bare a house as his poorer neighbours and eschews ceilings, painted walls and furniture as completely as they do."

From a description of the homesteads he goes on to a description of their occupations. "The life of the cultivator in Eastern Bengal is in many ways a very happy one. Nature is bountiful to him, the soil of his little farm yields in such abundance that he is able to meet all his desires without excessive work." "In those parts of the country in which jute is grown he works at two seasons of the year, growing rice on one portion of his land and jute on another; but many of the cultivators content themselves with the winter rice crop and so put all their labor into the months of March, April and May. . . . The time table of the cultivator, therefore, when his land is unfit for jute, shows three month's hard work and nine months idleness; if he grows jute as well as rice, he will have an additional six weeks' work in July and August. These are not conditions of which he can reasonably complain." The amusements of a peasant in the slack season are fishing, gossiping, and visiting his friends in other villages. "But the chief amusement . . . is to attend the neighbouring markets. Probably ten or twelve such markets will be within walking or boating distance of his homestead, all of which he will attend in turn, even in his busiest season finding time to go to two markets a week and during the winter and the rains, when

he has nothing to do, going usually to four or five and sometimes to a different market every day. He does not ordinarily go to buy anything, but to talk with his friends and neighbours. A cultivator may attend a market every day of the week and not spend more than four pence altogether, but when he has money the Muhammadan at least, is a great spendthrift." But these easy going peasants have a hard working women-folk. "Theirs is a dull life indeed; the bustle of the market place is not for them, nor the gentle pleasures of the fisherman. . . . But custom is a kindly autocrat who softens every hardship. They do not know and do not want the charms of a fuller or a freer life."

The second chapter deals with a statistical evaluation of the domestic budgets. 77 per cent of the population are cultivators and 23 non-cultivators, and in the calculation of the budgets these two classes are kept apart. "Very great labor was devoted to the preparation of domestic budgets, by over two hundred officers who made a close scrutiny of the habits and expenditure of more than two thousand families for the purpose." These families were classified in four groups, those in comfort, those below comfort, those above indigence and those in indigence. This classification was made by the personal observation of the officers who were told, expressly, that "where they find an agricultural family well-fed, well-housed and well-clothed, this is comfort; the material necessities are fully satisfied: where they find a family thin and ill-developed, their garments old and worn, their huts ill-thatched and tumbled-down, this is starvation. In most cases the evidence of the eye is decisive, . . ." On the opposite page is given the budget for two groups of the cultivators. The money values were calculated from the quantities of the goods consumed by the peasants and the prevailing local prices.

[The following table is abbreviated]

Items of Expenditure	Amount Spent Annually by a Family in Comfort			Amount Spent Annually by a Family in extreme indigence		
<i>Food—</i>	£.	s.	d.	£	s.	d.
Rice	8	0	0	4	0	0
Vegetables	10	0		2	0	
Fish, Milk and Ghi	10	8		2	0	
Salt, Oil and Spices	13	4		7	4	
	£9	14	0	£4	11	4
<i>Other Necessaries—</i>						
Clothes	1	13	4	12	0	
Tobacco, Molasses, Betel Nut	6	8		2	4	
Utensils, House Repairs, Furniture	12	0		5	4	
Kerosine Oil	2	8		2	8	
	£2	14	8	£1	2	4
<i>Miscellaneous—</i>						
Rent	1	13	4	6	0	
Local Taxation	2	0		1	0	
Purchase of Cattle, Boats,	12	0		2	0	
Thorough House Repairs	10	8		5	0	
Medical Treatment	6	8		2	0	
Entertainment	1	0	0	5	0	
	£4	4	8	£1	1	0

The standard of living which obtains among the cultivators is much more uniform than among the non-cultivators, in which class are included the cooly, the artisan, the shopkeeper and the professional man, each group having a different set of traditional ways of living.

The next chapter deals with income and economic conditions. The same classification, as above, is maintained. I give a table of the results arrived at for cultivators:—

Class	No. of families	Percentage of the population	Income per family per annum
			<i>Rs.</i>
In comfort ...	167,139	49 %	365
Below comfort ...	96,294	28 %	238
Above Indigence ...	68,969	18½ %	166
In Indigence ...	14,706	4½ %	115

The total annual income of the agricultural population was Rs. 71,800,000, or Rs. 280 per family per annum. This total is shown to agree well with the total for the value of the main crops of the district which amounts to Rs. 60,000,000. The difference between the two is easily accounted for by the minor sources of income.

Many interesting points are brought to notice in this chapter, on the sources of income, the extent to which the peasant works for hire, how the growing of jute converts the "self-sufficing" peasant into the more modern producer for a market. These and other points must be passed over in order to briefly examine the chapter on indebtedness. I give a statement, in tabular form, abbreviated, from the Appendix.

INDEBTEDNESS

	In the population as a whole	Amongst cultivators	Amongst non-cultivators
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
Total amount of the debt (in lakhs)	201	142	59.9
Average amount of debt per family	59	55	70
Percentage of population :—			
(1) Free from debt ...	59 %	55 %	78 %
(2) In debt, about ½ of the annual income.	20 %	24 %	10½ %
(3) In debt, about ¼ annual income	12 %	18 %	7½ %
(4) In debt about one years' income	7 %	7 %	6 %
(5) In debt, about two years' income and more.	2 %	1½ %	3 %
Average amount of debt amongst indebted families.	<i>Rs.</i> 144	<i>Rs.</i> 121	<i>Rs.</i> 258

The following table shows the distribution of indebtedness among the four classes:—

PERCENTAGE OF FAMILIES INDEBTED

Amongst	Amongst all families	Amongst in comfort	Families below comfort	Classified above want	Living in want
Cultivators :—					
Hindus ...	40	33	48	48	37
Muhammadian ...	47	42	54	53	44
Non-cultivators :—					
Hindu ...	26	21	33	30	23
Muhammadian ...	30	24	33	35	32

It will be seen that the indebtedness is distributed fairly uniformly among all classes, the cultivators being more indebted than the non-cultivators, and the number of indigent indebted not greater but below the average in other classes. If the amounts of indebtedness are examined we find that the indebtedness of the poorer is less than that of the richer classes; those "in comfort" have incurred nearly half of the total debt. For the district as a whole the debt amounts to about $\frac{1}{5}$ th of the total income, which debt is not heavy were it uniformly distributed. "As 55 % of all cultivators are entirely free from debt and another 20 % have borrowed very little, the income available for the reduction of debt is the income of only one quarter of the population, which already finds the earnings of four months in the year swallowed up in the payment of interest." Mr. Jack advocates the extension of co-operative credit banks under the supervision of a number of agents of an influential class; two hundred, he suggests, where only two or three now exist. "It would be their first duty to arrange the formation of these pioneer societies and to tempt out of the well-to-do cultivators their savings to finance them."

The last chapter deals with taxation. "In Faridpur it is easy to estimate with considerable accuracy the burden of taxation." The landtax, a legacy of the Permanent

Settlement, is light, remaining at Rs. 600,000, at which figure it was fixed 120 years ago. Had the Permanent Settlement not been effected the Central Government would have secured Rs. 2,400,000, as the profits from land have increased six-fold. The total taxation in Faridpur amounts to 3s. 8½d. per head. This, compared with that in other countries, is extremely small and amounts to about 5 per cent of the annual income:—

REVENUE PER HEAD

Country.			Of central authority	Of local authority	Total
France	...	...	£ 4 16 0	£ 1 12 0	£ 6 8 0
Italy	...	...	£ 2 15 0	£ 1 1 0	£ 3 16 0
Holland	...	...	3 1 0	2 11 0	5 12 0
Japan	...	...	1 2 0	0 12 0	1 14 0
Faridpur	...	...	0 3 4½	0 0 3¾	0 3 8½

“It may be assumed that the revenue from all sources amounts in Faridpur to about 3s. 6d. (Rs. 2-10) per head of the population. A calculation on the same basis shows that the revenue demand in Bengal is only half what it is in any other province in India, although in all probability the income per head of population is greater than in any other province.” “It will be observed that Bengal . . . is incontestably the most lightly taxed of civilized countries in the world. It is probable that there is no other in which the burden of taxation is not twice or three times as great as it is in Bengal.”

A feature of local taxation, which is exceptionally light on the whole, is the extreme inequality of its incidence. “The substance of that information” (obtained from the examination of the amounts paid by each individual family) “is that the burden is not equally borne by all sections of the community, that all non-agricultural families and the richer cultivators escape too lightly, and that the local authorities receive less than half of what has been paid.”

Mr. Jack makes a comparison with Italian conditions and I give this further quotation. “In writing an official

report upon the preparation of a Record of Rights in the district of Bakarganj, adjacent to Faridpur, I had occasion to use this analysis for the purpose of comparison. Bakarganj came very well out of the comparison, the net income of the cultivator being equal to that of the Italian cultivator who pays six times as much in taxes. The writer of the article remarked of the life in the Italian village: 'the people are vegetarians, not from choice but from necessity. They cannot afford to eat meat nor even eggs; they cannot afford to eat wheat bread but eat maize porridge and maize bread, vegetables and fruit, and what the cow produces.' This is for all practical purposes a description of the food of the people of Faridpur without the comfortable addition of fish in abundance to the daily diet. The houses of the Italian peasants are, no doubt, stronger, but that is due to the greater severity of the climate; they do not contain as much floor space, although they are much better furnished. The clothes of the peasant are made of better cloth and are far less scanty, but this again is due to difference of climate; . . . the population has scarcely any money at all for such indulgences as jewellery and spends very much less upon marriages and upon similar domestic ceremonies. . . . The Italian land tax was three times as much, the local authority took twice as much, and the village council seventeen times as much from the Italian peasant as from the Bakarganj peasant. In other words what the Bengal peasant spends on marriages and jewellery the Italian peasant is compelled by his government to spend on roads and lighting, on sanitation, on a good water supply, on medical attendance and on education."

The book is an extremely valuable one and should be in the hands of all serious students of economic conditions in India. It would be of immense value if every settlement officer were able, with the machinery and staff at his disposal, to conduct an investigation upon similar lines into the economic conditions of his district.

T. T. WILLIAMS

The Law and Principles of Co-operation in India. By H. CALVERT, I.C.S. pp. vi, 142. Thacker, Spink & Co. Rs. 4.

During recent years Indian co-operative literature has been gradually gaining in volume, the latest addition to it being the volume under review. As the title itself indicates, the book deals mainly with the law of co-operation in India. In the brief Introduction of 21 pages, however, the author traces the history of the co-operative movement in India and explains the principles on which it is based. He then takes the Co-operative Societies Act, 1912, and annotates it section by section. The notes are largely based on the Report of the Imperial Committee on Co-operation, Reports of the All-India Registrars' Conferences, Resolutions issued by the Government of India and the author's own personal experience. They refer also to the rules and practices of various European countries. These references, though often prolix and not of direct use to the Indian co-operator, show him the lines of progress and the way to tackle new and unforeseen problems. The notes, on the other hand, are generally sound and full, and should prove of use to practical co-operators and students of co-operation. We should like to draw the attention of our readers especially to the notes on Sec. 43 in which Mr. Calvert has summarised under proper headings all the rules issued by the various local governments.

But there are a few sections the wording of which is ambiguous and which require fuller elucidation. In various sections (5, 12, 14, 20, 21 and 22) we are told of a member's "interest" in capital, "interest" in the society, etc. But, not even on p. 40, has Mr. Calvert given us a sufficient explanation of these phrases. Again, Secs. 19 and 22—two of the most difficult sections of the Act—require fuller elucidation.

The book is, on the whole, very carefully written. Based as it is on wide reading, sound judgment and actual personal experience, it will be a most useful *vade mecum* for all practical co-operators in India.

The Population Problem in India. By P. K. WATTAL, M.A. Indian Finance Department, Assistant Accountant-General, Bombay. Bombay: Bennett, Coleman & Co. 1916. pp. v, 88. Price Re. 1.

There can be no question but that the population problem is the most serious economic question now confronting reformers

in India. The evils of economic dependence, social degradation and widespread poverty and destitution may be traced to the extraordinary growth of population relatively to the means of subsistence. Yet the further analysis, which the progress of social and economic studies has made possible, shows that the excess of population is due to definite causes and that the means of reducing the evil are well understood.

We wish to extend a hearty welcome to Mr. Wattal's book: in the first place because of the very great importance of the subject, and secondly because he has produced a scholarly little work of an earnest and thoughtful character, containing plenty of evidence of careful research and of a well balanced judgment. Too many Indian economists are content with descriptions of existing economic conditions, which they issue to the public under the imposing title of "Indian Economics". It is to be hoped that the book under review may serve as an example which will stimulate all economists in India to a study of those deep underlying economic forces, which are at present so very little understood or even studied. Whilst we can justly praise the book under review, it is by no means the last word on the subject, and we hope that it will stimulate professors of economics to investigate further the various difficult questions which it raises.

A brief account of the book and its argument may be of interest, and with this we may couple a critical estimate of some of the author's statements and conclusions. The first chapter states the Law of Population very concisely and clearly. We like it so much, that we quote fully from it:—

"Population ... has an inherent tendency to multiply beyond the means of subsistence prepared for it by Nature; . . . This general tendency to increase is held in check in two ways, by the preventive and the positive checks. The preventive check is voluntary and consists in the restraint from marriage when there is no reasonable chance of maintaining the habitual standard of comfort in life. The positive checks include diseases, wars, epidemics, famines, extreme poverty, unwholesome occupation, etc., in short everything which in any way contributes to shorten the natural duration of life. Such being the nature of the checks to the increase of population it is evident that the preventive and positive checks

must vary inversely as each other: that is to say, in countries where the preventive check prevails very little there will be a high death-rate; while in countries where the preventive check prevails the death rate will be low. It follows, therefore, that in countries with a high birth-rate there will be a rapid succession of short-lived beings to keep up the numbers, one generation being pushed out of existence before its time to make room for the next—a phenomenon painfully common all over India. . . . The only remedy, therefore, for poverty and other evil effects of the principle of population is moral restraint or abstinence from improvident marriages."

The second chapter deals with Marriage and its relation to the growth of population. The custom of very early marriages in India, which is ascribed partly to religious injunction, is deplored. Its effect upon fertility and upon the birth-rate is carefully analysed with the help of statistics, and the remedies for the evils thus disclosed are discussed, and the postponement of the age of marriage is recommended. Judging from the last Punjab Census Report the teachings of the social reform societies have had little or no practical result: at any rate girls still marry at the same youthful age, and postponement of the age of marriage amongst men, whilst beneficial, is not so important.

The third chapter deals with the rate of natural increase of the population in India as compared with other countries; and the short expectation of life characteristic of India is ascribed to the very high birth-rate which keeps the population at a low economic level subject to every form of disease and misery and consequently death at an early age. The high birth-rate is accompanied by a high death-rate, consequently the rate of increase of the population is small and there is a terrible wastage of life. The fourth chapter is devoted to migration; and here again the author is interesting and sound, except for the surprising statement (page 85) that in Bihar there are no large local industries. Yet in this Province, and the neighbouring Raniganj coalfield, coal and mica mining, the iron and steel industry, and the railways already employ over a quarter of a million persons, and are rapidly expanding. The author is right, however, in estimating the possible relief from overseas emigration as negligible, and in regarding Assam as a promising field for absorbing surplus population

if the vested interests of the tea plantation industry did not stand in the way of granting land on easy terms. The next chapter, on the Pressure of Population on the means of subsistence, is a long and important one, in which the author marshals much statistical evidence. He first reviews the density of population in each of the provinces and their natural sub-divisions, and points out that though there are in some districts large areas of what is officially termed "cultivable waste", in reality there is very little land, at any rate in British India, which is really available for cultivation. The so-called "cultivable waste" includes threshing floors, well-runs and village paths (see pp. 49-50); and much of it is either alkaline land or situated in dry tracts where it is beyond the power of the cultivator to provide water for irrigation. We think, however, that the author is unduly pessimistic as to the opportunities for extension of irrigation, both from new canals and by pumping from wells, and that if Government would pursue a bold policy and carry out the recommendations of the Irrigation Commission, much dry land in Northern India would be opened up and could support many millions more of population which it is to be hoped might be drawn from the congested areas. Towards the end of this chapter there is a useful discussion of the question whether the alleged scarcity of agricultural labor is real.

A final short chapter gives us a retrospect of the book and sums up clearly and concisely the very cogent arguments which the author puts forward regarding the economic and social evils of the growth of population and particularly of the agriculturalist population. We commend the book to the earnest study of every thoughtful Indian and to the rulers of this country; and we trust that the author will continue his investigations and writing on this most important subject.

H. S. JEVONS

The Co-operative Movement in India. BY PROFESSOR P. MUKHERJI, M.A., F.E.S. (London), Assistant Editor, "Bengal Co-operative Journal", with an introduction by Rai J.M. Mitra Bahadur, M.A., Registrar of Co-operative Societies, Bengal. Calcutta: Thacker, Spink & Co., pp. xxiv, 453, viii. Price Rs. 4-8.

We welcome the second edition of *The Co-operative Movement in India* which has been "entirely re-written and considerably

enlarged." Undoubtedly it covers considerably more ground than the first edition. The arrangement of subjects in the book under review is entirely different from that in the first edition, which was divided into nine chapters with six appendices, whereas the new book possesses twenty-one chapters with three appendices.

Broadly speaking Professor Mukherjee's book may be divided into two main parts: (i) History and development of co-operation in the West, (ii) History and principles of co-operation as practised in India. The first two chapters deal with the former, and the subsequent 19 chapters along with three appendixes deal with latter. The first chapter of the first edition has been much enlarged and developed in the new book and a different title "Brief Survey of the Origin and Development of Co-operation" has been given to it. The literature on "Co-operation in Europe" is very extensive. Wolff, Fay and Holyoake have contributed a great deal on the theory of co-operative principles and their applicability to the western conditions. Persons interested in the progress of co-operation in India must first of all learn lessons from the experiences of Europe. Professor Mukherji has condensed the vast literature of European co-operation into this chapter, and thus has saved much time and labor for the people who wish to be initiated into the movement. In the second chapter the author gives some account of the "Recent Developments of Co-operation in the West" and shows his close acquaintance with the recent literature on the movement. He introduces this chapter in the hope that these developments "may be adapted to the needs of India and established here in suitable centres."

Afterwards he "attempts within a brief compass to give a comprehensive survey of the phenomenal development of the co-operative movement in India". The chapter on "Rural Indebtedness in India" is somewhat vague and does not satisfy the expectations of the reader which the title warrants. Chapters IV and V describe how the scheme of Sir William Wedderburn proposed in 1882 was passed into law after 22 years in 1904. Sir Fredrick Nicholson, Mr. Dupernex and other workers in the field found in the Hindu caste system, in the Moslem sentiment of common brotherhood and "one for all" in the Panchayet system and particularly in the "Nidhis" and "Kuttu Chittu" of Southern India ample

evidence of the peoples' aptitude for co-operation. "The Nidhis seem to have been started about the middle of the last century when Schulze Delitsch and Raiffeisan were initiating the co-operative movement in Germany". Chapter VI points out the defects of the 1904 Act which led to the appointment of Sir Maclagan's Committee and the subsequent passing of the 1912 Act. Chapter VII gives some useful "hints on the organization and management of agricultural credit co-operative societies" which are of great practical importance to workers in the field. Chapter VIII on "Dharamgolas" deserves the attention of every co-operative student of Indian Economics. "Owing to the poverty of the great mass of agriculturists it often happens that they have to sell their grain immediately after the harvest when the prices are at their lowest in order to pay rent, mahajan's debts or Land Revenue assessment, and they are unable to keep in hand enough corn to maintain their families until the next year. Prices almost always begin to rise some three or four months after the harvest. If the agriculturists had been able to hold up their produce for three months, they would have had to sell less and could have kept in hand a stock enough to carry them over to the next year without an appeal to the sowkar". An institution like *dharamgolas* will undoubtedly enable them to derive the greatest economic advantage from their produce by selling their harvest at a good profit and laying by a stock of reserve for their subsistence and for any unforeseen emergencies, such as famine and scarcity.

In Chapters VII, VIII, XI, XII, XIV and XV the author describes the different types of agricultural or non-agricultural credit and non-credit societies in India and Burma. There he has not only traced the progress of the co-operative movement in India from its earliest stage to the present day but has also explained the nature and underlying principles of the different forms of Indian co-operative institutions and has also incorporated the model byelaws of 14 different kinds of societies. "The byelaws would be useful not only to the practical co-operator, but also to students of economics, who will find therein practical applications of the abstract theories of co-operations."

Chapter XVIII is a reproduction of Professor Coyajee's noble vindication of the Indian Co-operative credit movement.

A very useful feature of Chapter XX is the "annotations" to the Co-operative Societies Act, 1912. The select Bibliography and Index have made up a great deficiency of the first edition of the book. "The classification of Indian Co-operative Institutions as described in the book" and three appendices at the end which contain recent statistics, the Government of India Resolution on the growth of Co-operation in India and abstract report of the Imperial Committee on Co-operation, are of great use to students preparing for any examination. In the end we would like to note that Professor Mukherjee has omitted to deal with the "hasiyat registers (status books) which are kept in all the primary as well as central societies of the United Provinces. The advancement of loans and purchase of shares are entirely based on them. They have also got great economic value, for after sometime they will be a very useful record giving the real status of the peasantry. Officials, professors and students of economics, and every one interested in co-operation in India, will find the book very useful both for study and reference. We offer our hearty congratulations to Professor Mukherjee for his enterprize in bringing out this useful introduction to the subject. The Calcutta University has prescribed Professor Mukherjee's book for the B.A. Examination. We hope that other Indian Universities will follow suit by recommending it for their examinations.

Circles and Recipes in Economics. By V. L. VAJPAYEE
BHIMPURE. 1916. pp. 22. Price 4s. 5.

We would not in the ordinary course have noticed this pamphlet at any length, but the practice of writing notes and cram books is growing so fast that we must take this opportunity to utter a timely warning against it. Writing of notes with a view to helping students to pass examinations by mere cramming is bad enough in any subject, but in economics its dangers are especially great and real. As is commonly agreed, economics is still an unformed science, and one in which the everchanging human element is constantly to be reckoned with. Any attempts to reduce things to formulæ, therefore, is, to say the least of it, a task of doubtful utility. And such formulæ may prove positively misleading—even dangerous—in the hands of young beginners at the subject who are not acquainted with the many reservations

with which economic generalizations have to be taken. Taking an example from the pamphlet under review, we find that the very first "circle" runs thus:—

"Demand is great—Prices rise—Supply increases—But Demand falls—Prices fall—Supply diminishes—Demand becomes great."

Now in the first place we fail to see any relation between the first two parts of the circle, *viz.* Demand is great—Prices rise." It is the *increase* or *decrease* of demand—amongst several factors—which causes a *rise* or *fall* of Prices, not its absolute greatness or smallness. As a matter of fact, too, the expression "Demand is great" is hardly definite enough for scientific purposes.

But we have a much more fundamental criticism of Mr. Vajpayee's "circle", in that it is not a circle at all, because there is no necessary causal sequence of the events he names. "Demand increases; prices rise; supply increases" would be correct; but to state next that demand falls is a pure assumption—the assumed fall of demand is not a consequence of the increase of supply. In fact in so far as demand does alter *as a result* of an increase of supply it is almost always increased, because with a lower price people become accustomed to using or consuming the commodity. A possible exception would be articles which were fashionable only whilst rare and expensive. But, of course, most changes of demand do not depend on the supply at all. Mr. Vajpayee finishes up with another extraordinary assumption—that "demand becomes great" because supply diminishes. There are some real economic circles of cause and effect—particularly in connection with the population and wages questions and the standard of living; but these the author has stated only partially and with very inadequate explanation. His so-called "recipes" are merely mnemonics, chosen quite at random. There is in fact not an ounce of scholarship in the pamphlet; and we regret that a professor in a mission college should have allowed his name to appear in it as author of a brief preface.

Public Administration in Ancient India. By PRAMATHANATH BANERJEA. London: Macmillan & Co. 1916. 7s. 6d. net.

Dr. Banerjea has succeeded in producing a learned and interesting book, and there is much that is attractive about his attempt to apply the nomenclature of modern Social

Science to the conditions of life in Hindustan during the period 500 B.C. to 500 A.D. It is hardly necessary to remark that the author views the past through spectacles of a hue so roseate that, were they but directed upon the present, he must surely proclaim the arrival of the millennium. This arises mainly from the uncritical attitude he adopts towards his evidence. In the Preface he says: "Nothing has been said here which is not supported by reliable evidence." Just so: but all evidence is reliable up to a certain point, even if its reliability possesses a purely negative index. Our complaint against Dr. Banerjea is that he accepts statements which are obviously one-sided at their face-value: he makes no real attempt to discover and allow for the glorification of Brahmins and Brahmanism which runs through his texts. Like so many of his compatriots who turn all too willingly from the solid advantages of life under present-day conditions to the imaginary glories of a remote and obscure past, he has little sense of historical proportion. He fails altogether to see that the conditions of life which he is extolling are essentially primitive and rudimentary: that a certain degree of progress in the art of building may exist side by side with manners and customs not far removed from barbarism. The following statement is a good example of Dr. Banerjea's method. In the course of a chapter on what he calls Foreign Relations he says (p. 198): "Krishna, for example, was a plenipotentiary when he was sent by the Pandavas to the Kura Court with full powers just before the Great War." So, one must suppose, Noah was First Lord of the Admiralty when the keel of the Ark was laid down. Again, in the Introductory portion (p. 11, note 1.) Dr. Banerjea compares Kautilya to Machiavelli, much, of course, to the disadvantage of the latter. He says that while "Kautilya's political ideas continued to be accepted by many generations of kings and statesmen as safe guides in their work of actual administration, Machiavelli's *Prince* and other works were valued merely as abstract treatises and never influenced to any considerable extent the current of political events. The italics are ours, and they speak for themselves. Dr. Banerjea concludes his note with the amazing statement: "If any European politician can be compared to Chanakya, it is Bismarck". We should have thought St. Bruno or Suger of St. Denys a much closer parallel.

L. F. RUSHBROOK WILLIAMS

GOVERNMENT PUBLICATIONS

Review of "The Trade of India" in 1915-16. DEPARTMENT OF STATISTICS, INDIA. Calcutta: Superintendent of Government Printing. 1916. pp. vi, 112, vi. Price *As.* 12.

The Review of Trade may be regarded as the premier publication of the Director of Statistics. It is a fascinatingly interesting survey of the inland and foreign commerce of the Indian Empire during the financial year. It is always compiled with great care so that an extraordinary amount of information and all the most important trade statistics are condensed within a convenient compass. Whether the reader be interested in the course of trade as a whole or in the progress of any particular commodity, in the balance of trade and imports of treasure, or in customs, shipping and freights, he will find in this volume much clearly stated information on the subject of enquiry.

In the first chapter we find a survey of the general characteristics of the year, in which the following subjects are dealt with: the total sea-borne trade, with distinction made between private merchandise and that shipped on Government account; the effects of the war on foreign commerce; the imports and exports of Indian merchandise, with a paragraph on re-exports, followed by a section on Government stores. There follows an interesting and important section which deals with the year's imports and exports of gold and silver, both coin and bullion, followed by a brief note on the balance of trade which shows a largely increased balance in favor of India as compared with the previous year. In the next section the change in the volume of trade is exhibited by calculating the value of the total trade on the basis of the prices prevailing in the previous year. Whilst there is a distinct decline in the recalculated value, *i.e.*, volume, of imports, there was a marked increase in the recalculated value of exports. The net result is to show a shrinkage of the total volume of foreign trade by 1·3 per cent. Comparing the actually recorded values of 1915-16 with the recalculated values, we find that the average rise of prices was 4 per cent. The first chapter concludes with a section on wholesale prices in India in 1915-16, in which the index numbers of groups of commodities are quoted, whilst there is also a note on changes of wages.

In the second chapter the trade with special countries is dealt with in a comparative manner and colored charts are

provided which compare graphically the distribution of both the import trade and the export trade with different countries, in 1915-16 with the last pre-war year 1913-14. Different colors are used for British possessions, the allied countries, and all other foreign countries. We think that in the next *Review* a fourth color might be used to distinguish the enemy countries, as they now are, in the trade of 1913-14, from the neutral countries.

The third chapter analyses the imports into India according to the different groups of commodities, *e.g.* chemicals, cotton goods, glass ware, machinery, matches, metals, oils, and so forth; and in the fourth chapter the exports are dealt with in the same way, particularly interesting sections being those on coal, indigo, rice, wheat, hides, jute, wolfram, and oils and oil-seeds.

Chapter V deals with customs, shipping and freights, and Chapter VI with frontier trade. Burma and Bihar between them account for more than half of the total frontier trade of India. The following two chapters deal briefly with the coasting trade and with inland trade; and the last chapter is devoted to a summary and conclusions. In the last we find an interesting table giving the percentage of exports by sea to the estimated total production in the case of a number of agricultural products. The proportion of the crop exported rises from practically *nil* in the case of sugar and 4 per cent in the case of rice, and 6 per cent of wheat, to 65 per cent in the case of raw cotton, 49 per cent for linseed, and 105 per cent for indigo due to the holding back of the previous year's crop.

The volume as a whole is well turned out and there are few suggestions which we could offer for improvement. We venture, however, to suggest that there is no great advantage in separating the curves of the monthly changes of imports and exports and of total trade upon different charts. We think that they would gain in interest if all were placed upon one chart and distinguished by different colors, and this would leave room for another chart in the remaining half of the page. The very numerous summary tables inserted in the margin are very useful and interesting; but they need to be distinguished more clearly from the text in places either by enclosing with rules, or by means of a wider margin. We welcome the monthly charts of prices which are given for a few commodities; but is there any reason why these should be reproduced

by white lines on a black background? They look ugly and are not so clear as the ordinary black lines on white ground.

The second part of the volume contains valuable abstract tables of foreign trade, which provide details sufficient for many purposes. It is only for detailed investigations that the large annual volumes of statistics of sea-borne trade need be referred to.

H. S. JEVONS

Report of the Agricultural Research Institute and College, Pusa (including the Report of the Imperial Cotton Specialist, 1915-16), Published by Superintendent, Government Printing, India, Calcutta: 1916, pp. iv, 115, Price 6 annas or 7d.

This report embodies the many-sided activity of the Research Institute of Pusa. In addition to the report of the Director, which is a general one, we have special reports about their sections from the Imperial Agriculturist, the Imperial Agricultural Chemist, the Imperial Economic Botanist, the Imperial Mycologist, the Imperial Entomologist and the Agricultural Bacteriologist. The Researches carried on during the year pertain to a variety of things, chief among them being, green manures, the problem of infertility of soil under trees, rice as an article of diet, sweet potato as a possible source for the commercial production of starch, the establishment of new grades of wheat in India, experiments with Java indigo seed, the cultivation and propagation of fruit trees, the fungus diseases of crops and plants and the pests that affect cotton and rice, and other beetle-grubs that lay eggs on pea-pods, the storage experiments, the cattle flies and mosquitoes.

The Cotton Specialist has been making a tour to examine the varieties of cotton and the possibilities of their development, especially the Cambodia and Dharwar-American. He makes valuable recommendations with regard to Indian cotton growing.

The total expenditure during the year 1915-16 was Rs. 4,63,817. The gross receipts from the sale of farm produce, milk, publications of the department, and other articles amounted to Rs. 15,340. A sum of Rs. 23,502 was spent on "Sugar Experiments" in the United Provinces, in addition to the above expenditure. But against these figures we may put the estimate of the Imperial Economic Botanist that the substitution of the country wheats by Pusa No. 12 would mean

an immediate average increase in yield of fifteen rupees an acre. It is estimated that when this new wheat has been adopted for the entire area sown, the aggregate increase of the value of the crop will be not less than ten crores for the United Provinces alone.

In addition to the Scientific work of the Institute, students were trained for Post-Graduate Course in the various sections, and short courses were also given in cattle management and seri-culture.

Amongst the most important publications of the Institute is the Agricultural Journal of India—a special number being published, including all papers of agricultural interest read at the Third Indian Science Congress held at Lucknow in January 1916. The work of the Research Institute and the College is likely to prove very useful for the agricultural development of India.

REVIEWS OF BOOKS

BRITISH AND FOREIGN

An Introduction to Economics. By FRANK O'HARA, Ph.D.,
Associate Professor of Economics in the Catholic
University of America, Washington, D.C. New York :
The Macmillan Co. 1916. pp. 255. Price 4s. 6d. net.

The author of this small text-book aims at making the general principles easy for general readers and students. The book is remarkable for its clearness and brevity. The author has evidently a clear head and much experience in summing up economic truths for his students. Yet, in spite of its brevity, the book deals with no less than six theories of interest, and with the justification of rent and interest, has chapters on economic development, on the single tax and socialism, and on trust problems, labor legislation, and social insurance, and is in other ways surprisingly thorough.

The book is full of splendid examples, brief and clear. Thus the flow of income and its use is compared with the flow of a river into irrigation canals, and its evaporation in the fields. Fruit out of season is a luxury and fruit in season a necessity. Will-power and foresight in providing for the future is illustrated by the leaky roof which cannot be repaired in wet weather, and does not need repair in dry weather. The definitions are usually vivid and simple. Thus, economic goods are those which are scarce in relation to the wants they gratify. The margin of consumption is the dividing line between wants gratified and those left ungratified. Value is the power which ownership gives of securing other goods. But a market is defined both as the buyers and sellers of a commodity, and as the area of sale. There are comparatively few arithmetical examples, and few diagrams. The curves in these are all straight lines, but the statement is none the less clear and accurate. The assumptions are usually stated clearly; for example, the law of diminishing utility assumes that the units of the commodity are equal in size and quality, and that the character of the want does not change. But in introducing diminishing returns, it is said that ten men with

a given capital "cannot produce as much on 100 acres as on 1000 acres," which is usually true, but might fail in the case of a river valley running through a desert.

For the most part, the theory is excellent. In the theory of distribution there is an especially fine explanation of the relation of diminishing returns to marginal productivity which is made by assuming that all the agents of production remain constant, and showing how a stable equilibrium tends to result in the division of products among them. Diminishing returns is illustrated by examples of constant capital and constant labor, as well as of constant land. According to the author, the law of diminishing returns has to do with the *relative proportions* of land, labor, capital, and enterprise. But the laws of increasing or decreasing cost assume that the factors of production are always combined in the most effective manner. The relation of inventions and new methods to decreasing cost has apparently not been considered.

An unusual departure is made in employing the term "value in use," not to mean utility, but to mean the marginal utility multiplied by the number of articles in the supply.

The questions at the end of every chapter are strictly confined to the text, and the supplementary reading is chosen from a few standard books. The brief index makes no mention of Adam Smith or Ricardo, although they are elsewhere mentioned, but it contains the names of Raffeisen, Le Play, Engel, and others even less generally known. The author is familiar with all the most recent developments, for example, he cites the conclusions of Streightoff with regard to consumption in America, and gives a most clear explanation of the new United States Federal Reserve Act.

Altogether for brevity, for clearness, for conciseness, and for simple, straightforward thinking the book is one of the best we have seen. But the issues it raises cannot, of course, be settled so briefly and so simply.

CHARLES THOMPSON, JR.

The Sixteenth Financial and Economic Annual of Japan [with Statistics to end of 1915]. Published by the DEPARTMENT OF FINANCE. Tokyo: The Government Printing Office. 1916. pp. vii, 196, 3.

Nothing is an unmixed evil—not even war on an unprecedented scale. Thus while most of the great nations of

the world are engaged in a bloody strife, such as the world has never seen before, some of the neutrals, and one at least of the Allies, are making hay while the sun shines—over millions of dead and dying, wounded and starving. For Japan the war has come as a god-send.

The immediate consequence of the outbreak of hostilities in August 1914 was, of course, a severe blow to the economic organization of Japan, involving great dislocation, and even partial paralysis of her trade and industry. But this state of affairs did not last long, and the year 1915, especially the latter half of it, was for her a time of unprecedented prosperity. The principal factors which contributed, more than anything else, to bring about this change were two in number. First a remarkable expansion of her foreign export trade, due to a large sale of munitions to Russia, and the other Allies, and also to increased exportation to India, the South Seas and Australia and to other countries which had hitherto been supplied by the belligerent Powers. Side by side with this great growth of exports, there occurred a sudden fall in her import trade, thus turning the international trade balance, which had been uniformly against her since 1896, with the exception of two brief years, 1906, and 1909, heavily in her favour. We give in the following table some figures to illustrate our statement.

TOTAL VALUES OF EXPORTS AND IMPORTS OF MERCHANDISE

Year	Exports	Imports	Excess of exports (+) or Imports (—)
	<i>Yen</i>	<i>Yen</i>	<i>Yen</i>
1913	632,460,213	729,431,644	— 96,971,431
1914	591,101,461	595,735,725	— 4,634,264
1915	708,306,997	532,449,938	+ 175,857,059

It will appear from the above figures that, as compared with 1914 exports went up, in round numbers, by Yen 117,000,000 (£11,987,021), imports went down by Yen 63,000,000 (£6,452,935) and there was a net increase of Yen 53,000,000 (£5,428,659) in the total trade. The balance of trade which had been unfavourable in 1914, turned heavily in favour of Japan, and led, it may be pointed out, to a marked increase in her specie holdings in the foreign markets.

It may be interesting to note the changes in Japan's export and import trade with India during the last three years.

TOTAL VALUE OF MERCHANDISE EXPORTED TO AND IMPORTED FROM INDIA

Year	Exports to India	Imports from India	Excess of Exports (+) or Imports (—)
	<i>Yen</i>	<i>Yen</i>	<i>Yen</i>
1913	29,873,414	173,173,861	— 143,300,447
1914	26,048,337	160,324,460	— 134,276,123
1915	42,202,460	147,585,310	— 105,382,850

The above figures are instructive and show to what a remarkable extent Japan has increased her hold over the Indian market. Within a period of no more than twelve months she has increased her exports to this country by more than 16 million yen, representing a percentage increase of about 61·5, while she has materially reduced her imports from us.

The following details of Japan's trade with India compiled from tables 52 and 53 (pp. 100-7) of the Annual under review will be found interesting:—

TABLE SHOWING VALUE OF CHIEF COMMODITIES EXPORTED TO INDIA

Commodity	1913	1914	1915
	<i>Yen</i>	<i>Yen</i>	<i>Yen</i>
Camphor ...	830,604	824,719	1,254,697
Silk Tissues, (<i>habutae</i>)	6,812,529	3,274,295	5,405,876
Do. , (<i>kaiki</i>)	65,439	15,604	45,404
Silk handkerchiefs ...	132,486	64,379	78,268
Towels, cotton ...	503,090	359,767	350,986
Coal ...	1,095,095	511,358	277,159
Porcelain and Earthen- ware ...	314,636	234,865	514,929
Matches ...	1,973,785	2,895,972	5,494,133

The figures in the above table serve a double purpose. They show the immediate disturbing effects of the war, and also, what is more significant, the wonderful manner in which Japan not only recovered from the great shock, but turned

it to good account. The most arresting figures are those relating to matches. They show to what a remarkable extent Japan was able to capture the Indian market for this commodity. In this connection the following remarks taken from the Review of Trade of India for 1914-15 will be found illuminating:—

“Until recently matches ‘made in Sweden’ or ‘made in Norway’ monopolised the Indian market, but cheap Japanese Matches have since 1912-13 been a formidable competitor. The influx of Japanese matches has enormously increased owing, it is said to (1) cheap freights, (2) existence of a Japanese league of manufacturers and shippers, and (3) the formation of a regular service sailing from Japan to Calcutta via Rangoon. Japan has now captured the major portion of the Indian match trade. Imports from Sweden and Norway continue to show a noticeable decrease. The reason is that Japanese matches are very much cheaper than Swedish matches. The monthly average (of import from Japan) for the last four months of 1914-15, showed an increase of 221 per cent as against the corresponding period of the previous year.” This is how a practical people backed by a practical Government set about their business. No amount of mere talking, even though supported by commissions, can help to industrialize a country.

The following table gives some details about Japanese imports from us:—

VALUE OF CHIEF COMMODITIES IMPORTED FROM INDIA

Commodity		1913	1914	1915
		<i>Yen</i>	<i>Yen</i>	<i>Yen</i>
Rice	...	20,080,917	7,465,677	647,874
Indigo	...	31,488	26,399	146,024
Cotton, Raw	...	143,039,172	145,447,591	139,704,522
Flax, Hemp, Jute and China grass	...	1,153,058	832,311	1,280,543
Wool	...	5,388	12,408	5,650
Oil-cake	...	1,912,034	1,269,338	511,572

It will be seen from this table that, compared with 1913, our export of rice to Japan has in 1915 practically dis-

appeared, owing, it is stated, to abundant harvests in that country. There has been a substantial fall in other items too. The only noticeable increase is in the case of indigo, due no doubt to the stoppage of the supply of aniline dyes from Germany.

The second factor which contributed to alter the international trade balance of Japan was the almost phenomenal growth of her shipping business. The war naturally caused a great dearth of bottoms, for a considerable number of the vessels belonging to the belligerent powers were requisitioned for military purposes. Japan was thus enabled to obtain a very much larger share of the world's carrying business, and her shipping was extremely brisk. The following table, based partly on the *Financial and Economic Annual of Japan* for 1914, and partly on the one under review, shows this clearly. The figures refer only to steamship companies.

Year	No. of companies	CAPITAL		No. of vessels	Gross Tonnage	Gross earnings	Net earnings	Average rate of dividend
		Authorised	Paid up					
1913	23	Yen 70,484,000	Yen 62,484,000	3286	1,528,264	Yen 74,500,000 (nearly).	Yen 15,700,000 (nearly).	10·7
1915	24	78,234,000	65,793,500	3487	1,621,205	90,000,000 (nearly).	21,451,000 (nearly).	33·0

Thus while the paid up capital, and gross tonnage increased but slightly, net earnings went up by almost 50%, and the average rate of interest more than trebled. This was no doubt partly due to higher freight rates, but mostly to greater briskness of trade.

But while the effect of the great war is reflected chiefly in the figures relating to volume of foreign trade and shipping, there are other figures relating to Finance, Agriculture, Industry and Commerce, Banking and Money Market, and Communications, which will be found of considerable interest, as indicating the rapid strides which this wonderful land is taking in her industrial march. The Annual contains, besides all this, numerous diagrams, and a map of Japan. Separate figures are given for Korea and other Japanese Provinces.

Altogether the Annual is brimful of the most interesting information. The arrangement of matter is extremely good,

and the get up of the volume very neat, and some of our Government departments, with their abominably printed blue books, might do worse than copy the style of the Sixteenth Financial and Economic Annual of Japan.

The Real German Rivalry : Yesterday, To-day and To-morrow.

By SIR SWIRE SMITH, M.P. LL.D., Member of Advisory Committee of Royal College of Art. London: T. Fisher Unwin, Ltd., Adelphi Terrace. 1916. pp. 80. Price 1s. net.

The author deals "as a business man addressing business men" with the problems which will arise after the war, in providing employment for the returned soldiers and for "the great army of women who have replaced men in many industries." He is also concerned with the general question of the competition of British trade with that of Germany, and he makes a very powerful plea for a general interest in education and its application to the industrial and professional needs of England. He traces the growth of German expansion and success to the national belief in education and the seriousness with which it has been regarded. After examining the present industrial position in England he quotes many authorities as to the need of increased efficiency, both of labour and of direction. He pleads for equality of opportunity to be given to all in every corner of the United Kingdom and urges the creation of a real national system of education, equal to the task of fitting young men and women for their task in life.

We think that Sir Swire Smith has accurately diagnosed the weakness of Great Britain in regard to industrial competition, that is, in competition with such enterprising peoples as the Americans and the Germans; and much that he says about education is applicable with still greater force to India. He also deals briefly, and we think soundly, with tariff policy after the war, and points out that it would not be wise policy for England to place obstacles in the way of her own trade simply to injure the trade of a competitor. He is not very hopeful that the Allies will be able to find a common economic policy. We may at least agree with him that the matter requires the deepest enquiry and consideration, and that it would be false policy to attempt permanently to depart from sound principles in order to grasp at an economic phantom which would speedily dissolve through the natural forces of

economic development. A combination of the Allies in trade policy must be evolved from careful investigations and a gradual process of experiment towards the desired end.

The New Protectionism. By J. A. HOBSON. London: T. Fisher Unwin. 1916. pp. xx, 153. Price 2s. 6d. net.

This interesting little book is a critical examination of New Protectionism advocated at the Paris Economic Conference, recommending a scheme of Economic Independence and Self-sufficiency for the Allied Nations of Europe as against the Central Powers which are now at war. The New Protectionists under the false plea of 'Defence' wish to split Europe into two hostile camps of commercial rivals and this "economic war after the war" is to be fought with the weapons peculiar to Protectionists. This aggressive program of national defence is, according to Hobson, not only foolish but criminal. This policy of economic nationalism in the name of defence is 'a crime against civilisation'; and in the last chapter entitled "The Open Door," Hobson gives a constructive program which would remove the causes of economic antagonism among nations and bring about the new conditions of international intercourse on lines of 'fair competition and fruitful co-operation.'

The author starts with exposing the common errors of the Protectionist school of Chamberlain and takes his reader along with him in showing that "protection sets the producer against consumer and trade against trade, locality against locality, capital against labour, land against both, and lastly nation against nation, falsely represented as economic corporations." With his usual clearness and lucidity of style Hobson succeeds in proving that the growth of Protectionism in the United States, France and Germany is due to the organised political pressure of powerful manufacturers brought to bear on their respective national governments with the object of securing tariffs, bounties and railroad facilities.

In the chapter on "The Tangles of a Tariff", the author raises the practical difficulty of harmonising the conflicting interests of the British Isles with the rest of the British Empire; the interests of the Empire with the Allied nations; the application of general tariff to neutrals, and the difficulties of excluding enemy goods which may

be useful for home manufactures or for general consumption. Hobson foresees a violent dislocation of commerce and finance after the war and the New Protectionists will, he holds, introduce elements of discord and dissension which would end in a serious recoil on the already damaged commerce of Great Britain. He condemns in very strong terms the fallacies underlying the position which the New Protectionists intend to assume and shows them the economic unsoundness of their position by facts and figures. He has no patience with the Protectionists of the old school and he has much less patience with the New School of Protection represented by the Paris Conference.

As we read through the book we are impressed by the general sanity of the views of Hobson, who is out and out a Free Trader of an advanced abstract type, and who has sincerity of conviction combined with a rational interpretation of the complex conditions created by the present War. He realises that the "process of economic penetration and expansion cannot stop", but he holds that it is possible "to extract from it . . . the poisonous sting of international rivalry." How far this dream of Hobson's is capable of being realised, it is difficult to say. We think our author rather overlooks the fact that one result of the War will be that in the mind of the average citizen "defence" will for long remain far more important than "opulence." A great war naturally leads to a revival of protectionism under the plea of national defence, which is justified, we think, so far as protection is utilized solely for the public purpose of developing those resources of the country which contribute to military efficiency. Whilst a policy of protection wisely controlled for purely national ends will continue to appeal to economists in spite of Hobson's visions, we think he succeeds in making a very fair case against the rather vague, but sweeping proposals of the "New Protectionists" who assembled in Paris in June 1916. The resolutions passed by this Conference are summarized in an Appendix.

Although we doubt whether the doctrine of absolute free trade can be maintained so long as any liability to future War remains, Hobson's "New Protectionism" is certainly a book which should not be lightly passed over. We commend it to our readers as a controversial writing of a high order of merit.

The Cost of War: and ways of reducing it suggested by economic theory. A Lecture by F. Y. EDGEWORTH, M.A., Fellow of All Souls, Professor of Political Economy in the University of Oxford. Oxford: University Press. 1915. pp. 48. Price 1s. net.

Professor Edgeworth in his usual inimitable style throws valuable suggestions for reducing the cost of war, of course mainly as an economist and not as a statesman. He extends the money costs of war, to include not only the national expenditure, but also the indirect loss of national income consequent on the dislocation of production and the deterioration of the capital fund accumulated in peace time for production. Some authors have also estimated and included the loss of living capital and the whole cost of preparing for war in times of peace—thus making the money cost of war something colossal and immeasurable. 'It must not be supposed however', says Professor Edgeworth, 'that suggestions for reducing the cost are unavailing'.

He elaborates at some length the conception of capital, 'involving the element of time' (Jevons) and represents the process of production and consumption as being a continuous *flow*—a stream descending through the successive stages of production from raw materials to half-manufactured goods, on to finished goods fit for consumption, back again to re-creation of wealth by replenishing, through distribution, the agents of production. This system of capital, in response to the demand, furnishes superfluous luxuries as well as necessities; and the arrangements for financing a war, in the opinion of Professor Edgeworth, should be such as will divert labor and capital from the production of luxuries and leave the existing channels of production otherwise as little impaired as possible, so that at the termination of war a readjustment may take place with least work and waiting.

At the close of his lecture the Professor suggests the creation of a permanent committee concerned with *economic* preparation of war as distinguished from its *financial* preparation. This aspect of war should be made the special object of scientific observation and analysis; and some such methods as have been adopted in averting conflicts between labor and capital might, he thinks, be applied to disputes between nations—disputes that are called *political*, but are often largely *economic*.

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND
IN ENGLAND ON THE LAST DAY OF EACH MONTH

Held in the following form	30th June 1917	31st July 1917	31st August 1917
	£	£	£
1. Gold in India ...	47,000	53,000	45,000
2. Cash placed by Sec. of State at short notice	6,024,360	6,022,338	6,000,043
3. British and Colonial secu- rities (value as at 31st March, 1917)	17,457,684	17,220,616	16,742,581
4. Securities since purchased (at cost price)	9,038,705	9,488,692	10,192,856
Total ...	32,567,749	32,784,646	32,980,480

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES
AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS
AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

Year	30th June	31st July	31st August
	Rs.	Rs.	Rs.
1915 ...	17,41,54,000	21,04,96,000	22,35,67,000
1916 ...	18,22,74,000	20,41,51,000	18,29,65,000
1917 ...	39,60,52,000	35,96,31,000	26,48,44,000
<i>Bank-Rates</i>	30th June per cent	31st July per cent	31st August per cent
Bank of Bengal ...	6	6	6
Do. Bombay ...	6	6	6
Do. Madras ...	8	8	7
Do. England ...	5	5	5
<i>Exchange Rates</i>	s. d.	s. d.	s. d.
On Demand ...	1 $\frac{49}{32}$	1 $\frac{49}{32}$	1 $\frac{51}{32}$
Telegraphic Transfers ...	1 $\frac{47}{32}$	1 $\frac{47}{32}$	1 $\frac{431}{32}$
3 months' ...	1 $\frac{49}{32}$	1 $\frac{49}{32}$	1 $\frac{57}{76}$
6 months' ...	1 $\frac{47}{32}$	1 $\frac{47}{32}$	1 $\frac{53}{32}$
Government Paper (3½ p. c.)	66-8 to 66-14	66-2 to 66-8	63-8
Bar silver ...	39½d	39½d	46d

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE
OF PAPER CURRENCY, 1917

—	30th June	31st July	31st August
	Rs.	Rs.	Rs.
Total amount of notes in circulation ¹	98,28;65,115	99,31;21,295	105,15;26,650
Deduct ² ...	Nil	Nil	Nil
RESERVE			
COIN AND BULLION			
<i>In India :—</i>			
Silver coin ...	19,66;88,423	25,92;18,788	28,66;05,801
Gold coin and Bullion ...	7,10;32,045	7,27;10,150	12,21;57,763
Silver Bullion under coinage ...	68;11,226	47;59,226	45;18,069
<i>In England :—</i>			
Gold coin and bullion	4,80;00,000	4,42;50,000	2,55;00,000
Securities (at purchase price):—			
Held in India ...	9,99;99,946	9,99;99,946	9,99;99,946
Held in England ...	51,17;52,975	51,47;94,900	51,48;08,571
Total Reserve ...	98,37;84,615	99,57;33,010	105,36;20,150
Deduct ³ ...	9;19,500	26;11,715	20;93,500
Net Total Reserve ...	98,28;65,115	99,31;21,295	105,15;26,650

¹ Figures to the left of the semi-colon indicate the number of *lakhs*.

² Deduct—withdrawn from circulation by Foreign Circles and in course of remittance to circles of Issue.

³ Deduct—Amount due on Bills drawn by one circle on another.

PRINCIPAL CONTENTS OF FOREIGN JOURNALS

ECONOMIC JOURNAL

(Quarterly Journal of the Royal Economic Society. London:
Macmillan & Co., Ltd.)

MARCH, 1917

I. ARTICLES—

- The Conscription of Income*, by Prof. O. M. W. SPRAGUE.
The Economics of the War loan, by Prof. A. C. PIGOU.
Taxation of Excessive Profits Abroad, by J. C. STAMP.
Small Holdings and Corn Prices, by A. W. ASHBY.
The Remuneration of Women's Services, by ELEANOR RATHBONE.

II. Review-Articles—

- British Financial Organisation*, by Prof. C. F. BASTABLE.
Industrial Fatigue, by P. S. FLORENCE.
The Black Death, by E. LIPSON.
(Also Reviews of Jack's *Economic Life of a Bengal District* and Wattals' *The Population Problem in India*.)

JUNE, 1917

I. ARTICLES—

- The Netherlands Bank and the War*, by Dr. G. VISSEING.
The Depreciation of British Home Investments, IV, by a STOCKBROKER.
Industrial Ireland under Free Trade, by Prof. C. H. OLDHAM.
Anglo-Russian Economic Relations, by JULES GAY.

II. Review-Articles—

- Some German Economic Writings about the War*, by Prof. F. Y. EDGEWORTH.
(Also a Review of Mukerjee's *Foundations of Indian Economics*.)

THE JOURNAL OF POLITICAL ECONOMY

(Published monthly from October to July by the University
of Chicago, U. S. A.)

JANUARY, 1917

PROBLEMS OF ECONOMIC INSTRUCTION.

I. Under-Graduate courses in Economics

The Amherst Program in Science, by W. H. HAMILTON.
*Courses in Economics and Methods of Instruction at
North Western University*, by F. S. DEIBLER.
Discussion on the above.

II. Graduate work in Economics

Graduate Work in Preparation for Teaching, by
F. L. McVEY.
Graduate Work in Economics, by W. F. GEPHART.
The Place of Economic Theory in Graduate Work, by
J. A. FIELD. *Discussion.*

III. Economics and Allied Fields

The Relation of Engineering to Economics, by J. L. HAY-
FORD. *Discussion.*
The Relation of Law and Economics, by E. A. GILMORE.
Discussion.
A Balanced Curriculum in Business Education, by
L. C. MARSHALL.
Economics and the Science of Business, by E. D. HOWARD.
Discussion.

NOTES—*Education in Accounting, Financing, Foreign
trade—Dyestuff Census.*

Book Review of Taussig's *Some Aspects of the Tariff
Question*

APRIL, 1917

Legalising Combination for Export Trade, by C. S. DUNCAN.
The Virginia State Debt and Internal Improvements,
by R. L. MORTON.
How to Avoid Government Ownership of Railroads, by
E. C. CARMAN.

NOTES—*The Revenue Act—A Shipping Subsidy Discarded
—Policy as to Foreign Loans.*

Book-Reviews of Curtis' *The Problem of the Common-
wealth*, Hirst's *The Political Economy of War*, Smart's
Second Thoughts of an Economist.

MAY, 1917

- The Philippine National Bank*, by H. P. WILLIS.
The State Life Fund of Wisconsin, by M. A. SMITH.
The Ethics of Land-value Taxation, by H. G. BROWN.
South America and the War, by W. S. TOWER.

NOTES—*The New Bond Issue—Note-Issue Power of Reserve Banks.*

Book-Reviews of Curtis' (Editor) *The Commonwealth of Nations*, Bristols' *Social Adaptation*, McBains' *The Law and Practice of Municipal Home Rule* and Wither's *International Finance*.

JUNE, 1917

Economic Conditions and the Birthrate after the War, by A. B. WOLFE.

Railroad Co-ordination, by A. V. ARRAGON.

Automobile Insurance Rates, by R. RIEGEL.

Medical Benefits under Workmen's Compensation, by J. M. RUBINOW.

NOTES—*The New War Loan—Borrowing Power of the Nations—Rates of Interest and their Effect—Requirements of the Government—The Program of Taxation.*

Book-Reviews of Reed's *The Moral of Monopoly and Competition*, Steven's *Unfair Competition*, Brown's *Principles of Commerce*.

THE AMERICAN ECONOMIC REVIEW

(Published Quarterly by the American Economic Association,
 Secretary Prof. A. A. Young, Ithaca, N. Y.)

MARCH, 1917

Theoretical Issues in the Single Tax, by H. J. DAVENPORT.

A Rule for Testing Tax Valuations of Railroads, by M. A. SMITH.

Six Years of Postal Savings in the U.S., by E. W. KEMMERER.

The History of the Trade Dollar, by P. GARNETT.

JUNE, 1917

What the Federal Reserve System has Done, by H. P. WILLIS.

Determinants of Lumber Prices, by G. A. STEPHENS.

Marketing Functions and Mercantile Organisation, by L. D. H. WELD.

Real Wages in Recent Years, by F. W. JONES.

Open Price Associations, by H. R. TOSDAL.

Railroad Equipment Obligations, by A. S. DEWING.

QUARTERLY JOURNAL OF ECONOMICS

(Published by the Harvard University, Cambridge, Mass.)

NOVEMBER, 1916

The Taxation of Property and Income in Massachusetts,
by C. J. BULLOCK.*Why Organised Labor Opposes Scientific Management*, by
R. F. HOXIE.*Teaching the Introductory Courses in Economics*, by
C. E. PERSONS.*The Fall in German Exchange*, by M. T. BONN.*Commercial Contracts of the Genoese in the Syrian Trade
of the Twelfth Century*, by E. H. BYME.

FEBRUARY, 1917

*Climatic Change and Agricultural Exhaustion as Elements
in the Fall of Rome*, by E. HUNTINGTON.*The Separation of Railroad Operating Expenses between
Freight and Passenger Services*, by W. J. CUNNINGHAM.*Work and Pay: a Suggestion for Representative Govern-
ment in Industry*, by R. G. VALENTINE and O. TEAD.*The German Steel Syndicate*, by H. R. TOSDAL.*Total Utility and Consumer's Surplus under Varying Condi-
tions of the Distribution of Income*, by P. G. WRIGHT.*NOTES—Standardization in Marketing* (T. N. CARVER.)
Exhaustion of the Soil and the Theory of Rent,
(F. W. TAUSSIG). *Some Considerations on Land
Taxation*, (J. R. TURNER).

BOOKS RECEIVED

- The Foundations of Indian Economics.* By RADHAKAMAL MUKERJI, with an introduction, by Patrick Geddes. London: Longman's Green & Co. pp. xxvi, 515. Price 9s. net.
- English Public Health Administration.* By B. G. BANINGTON, with an introduction by G. Wallas (Studies in Economics and Political Science Series). London: P. S. King & Son pp. xiv, 338. Price 7s. 6d. net.
- British Income and Property.* By J. C. STAMP (Studies in Economics and Political Science). London: P. S. King & Son. pp. xvi, 538. Price 12s. 6d. net.
- Circles and Recipes in Economics.* By B. L. VAJPAI BHIMPURE, published by the author, Kydganj, Allahabad. pp. 22. Price As. 5.
- The Law and Principles of Co-operation in India.* By H. CALVERT Registrar C. S. Punjab. Calcutta: Thacker Spink & Co. pp. vi, 152. Price Rs. 4.
- First Annual Report of the Indian Economic Society.* Bombay: Servants of India Society's Home. pp. 23.
- The Physiography of the River Nile and its Basin.* By Capt. H. G. LYONS. Cairo: National Printing Department pp. viii, 411, 4.
- The Selective Draft Law and the President's Registration Proclamation.* New York: National Bank of Commerce. pp. 22.
- A Constructive Criticism of the U. S. War Tax Bill.* New York: National Bank of Commerce. pp. 22.
- Federal Reserve Act including Amendments to June 1917.* New York: National Bank of Commerce. pp. 72.
- Property Rights and Trade Rivalries.* By G. E. ROBERTS. New York: National City Bank. pp. ii, 21.
- War Finance Primer.* New York: National Bank of Commerce. pp. 136. ii.
- The Basis of Legislative Policy in Modern States: Inaugural Address.* By SIR N. G. CHANDARVARKAR. Bombay: Servants of India Society's Home pp. 56. Price As. 5.
- The Finances of Great Britain and Germany.* By E. F. DAVIES. London: T. Fisher Unwin Ltd. pp. 61. Price 2d.
- Economics of British India.* By J. N. SARKAR. 4th Edition. Calcutta: M. C. Sarkar & Sons. pp. viii. 376. Price Rs. 3.

The Essentials of a University in a Great Centre of Population.
(A reprint of Part II of the Final Report of the Royal Commission on University Education in London). Calcutta : Superintendent Government Printing. pp. vi, 56. (not for sale).

The Report of the Committee of Inquiry appointed to Report on the Question of Housing of Laborers on the Collieries of Bihar and Orissa. From the office of Additional Deputy Commissioner, Dhanbad.

Town Planning in Balrampore. By Prof. P. GEDDES. pp. 80, with maps.

Report on the Town of Dacca. By Prof. P. GEDDES. pp. 26.

Town Planning in Nagpur. By Prof. GEDDES. pp. 17.

Town Planning in Jubbulpore. By Prof. GEDDES and LANCHESTER. pp. 10.

Report on the Model Colony at Kanchrapara. By Prof GEDDES. pp. 14. Eastern Bengal Railway Press.

The Bombay Co-operative Quarterly. Vol. I. Nos. 1 & 2. Bombay: Co-operative Library.

Economic Problems of Peace After War. By W. R. SCOTT. Cambridge: University Press. pp. xii, 122. Price 4s. 6d.

The Mechanism of Exchange. By J. A. TODD. 1917. London: Oxford University Press: pp. xi, 255.

Seasonal Trades. Edited by S. WEBB and A. FREEMAN. London: Constable and Co. pp. x, 410, 6.

Reports on the Economic Geology of Porbandar State. By E. HOWARD ADYE. Bombay: The Times Press. pp. xv, cxcv, 198. 15 maps.

The Industrial Decline in India. By Prof. BALKRISHNA. Allahabad: Star Press. 1917. pp. iii, 408. Price Rs. 2-8.

Mysteries of War Loans. Extracts from a speech by Sir E. H. HOLDEN. *The Wealth of India Series.* Madras: Vaidya Raman and Co. pp. 46. Price 4 Annas,

Land and Labour in a Deccan Village. By H. H. MANN. Principal Poona Agricultural College. Bombay: Oxford University Press. 1917. pp. v, 177.

Commercial Banking Practice. New York: National Bank of Commerce. pp. 66.

The Agricultural Problem of India. By Rai Bahadur GANGA RAM, Late of P. W. D. Simla: Army Press. 1917. pp. iv, 155.

The Railroad Situation. New York: Guaranty Trust Company. 1917. pp. 29.

The Seventeenth Financial and Economic Annual of Japan. Published by the Department of Finance. Tokyo: Government Printing Office. 1917. pp. vii, 194.

INDIAN JOURNAL OF ECONOMICS

Vol. I. Part 2. 1918

SOUTH INDIAN ECONOMICS¹

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It is well for me to explain in the beginning that the word 'South India' in my title means the south-eastern corner of the peninsula lying south and east of the railway line from Madras through the Palghat Gap to Cochin. I have only lived in India since December 1915, and while one of my duties is to visit different parts of the Presidency of Madras and the States which come within the geographical sphere of the University of Madras, I have begun my journeys in the corner mentioned, and have not yet been able to visit the northern part of the Presidency and the State of Hyderabad.

For many years two economic questions relating to India have excited my concern. At different periods we have had harrowing details in England of Indian famines; and the question has pressed upon my mind to what extent the causes of famines have been purely the failure of monsoons or other climatic misfortunes,

¹ Delivered in Bombay on the 20th July, 1917.

and to what extent they are the consequence of poverty among the people which prevents them from having sufficient resources to survive a failure of crops.

When it became known in England that it was estimated that the average Indian income was only about £2 per head, this question was to some extent answered, but one was faced with the further question as to what was the cause of this intensity of poverty, exceeding that to be found in any other civilized country.

To this question an answer was readily supplied through the spokesmen of Indian opinion who made their views generally known in England. We were told that Indian poverty was due to the exactions of the land revenue, that its amount was so heavy as to crush the peasants into poverty, and that periodical resettlements took away from the peasant all feeling of security and caused him to shrink from expending labor and capital on improving his holding, and that the remedy for Indian poverty was to extend Permanent Settlement over the whole land.

I am bound to say that I found it hard to credit this explanation even in England; and that the system of permanent settlement, particularly as carried out in Bengal, appeared to me to have all the vices of our landlord system in England, which practically all people except the landlords themselves are agreed is in need of very drastic reform, and of reform which would make it much more similar to the ryotwari system with periodical resettlement. However it was easy to see that if the land revenue exacted were so high as to exceed the economic rent of the land, or if it were levied in such a way as to deprive the ryot of any motive of improving the land it must be disastrous, and a potent cause of poverty in India. The question was, whether these things were so as a matter of actual fact?

Almost immediately I came to Madras I had my first conversation on the subject. I asked a man if he were a land owner. He told me that while living in Madras he owned ten acres of wet land in his native village, that he had let these to his brother-in-law, and that, though an absentee landlord doing nothing to the land and undertaking no responsibility except that of paying the land tax, he received and retained for himself six times the amount of the kist.

The first village that I visited showed a similar result. The chief land owner who owned about 400 acres, and let out about 200 acres, told me that the average rent received was Rs 30 per acre and the average kist Rs 5 per acre. Similar information was received in every other place I visited; and I have ascertained that the average rent received by a landlord who has done at his own expense no improvement whatsoever to the land is five times the kist throughout the districts that I include under the term 'South India'. Nor have I found any reason to suppose that Settlement Officers ignored the instructions which are given to them by the Government of exempting improvements made by the pattadar from consideration in determining the amount of the kist. Thus for example in one village when I asked what the kist was the villagers told me it was Rs 1-8-0 per acre; when I asked what rent the pattadar received from the sub-tenant they told me Rs 40 per acre. This was dry land improved by sinking of wells. When I passed out of British India into the State of Travancore and discussed the subject of land revenue with students in the Maharaja's College, they told me that the Travancore system was identical with the British system, but that the kist was so moderate as not to be oppressive as it was in British India. I then met an official in the Agricultural Department of the Travancore Government,

and asked him what kist they levied on the wet lands in the village in which we happened to be. He told me that was Rs 26 per acre. Now the maximum kist in the Madras presidency is Rs 22-8 per acre. I quite agree that the Travancore assessment is so moderate that it is not injurious or oppressive; but I have come to the conclusion that the same is the fact also with regard to the Madras assessment. I do not believe that the pressure of land revenue in those parts of India which I have seen is in any way an explanation of Indian poverty.

If however the cause of Indian poverty is not to be found in the explanation generally offered to us, what is the true explanation? And further in what directions should we look for some remedy, or at least some palliative? Please note that I do not profess to give any full or adequate answer to these questions. I only propose to offer you some remarks based upon my own observations.

South India is to such an extent an agricultural country that almost the whole population is either directly employed in agriculture, or supported by agriculture at only one remove. There are some considerable mills and factories in the city of Madras. There are cotton mills also in Coimbatore, Madura, Ambasamudram and Tuticorin; there are important bodies of hand-loom weavers and workers in other handicrafts in various towns and villages. But out of the population which is not directly employed in agriculture, the great majority consists of craftsmen who serve the agriculturists in the village, of traders who deal in agricultural produce, or vakils whose income is derived from disputes about land, and an immense variety of other people who are, as I said, dependent on agriculture at one remove only. Hence the prosperity of South India depends almost entirely upon

the efficiency with which agricultural work is done. Where the average worker produces a high output, it is possible for the average income to be high; where the average output of the worker is very small the average income must necessarily be very low. The first thing therefore that one naturally inquires into is the amount of work done in a day by the agricultural worker.

I watched with amazement the harvesters at work in the paddy field. They squatted on the ground and each man grasped with his hand the stalks of paddy that came from one root and severed them close to the ground with a blow from the sickle. He then gently deposited the bundle behind him, shuffled a few inches, still squatting, and repeated the operation. I asked how many men it took to cut an acre in a day. The answer was eight, and that women were necessary in addition to carry the crop to the threshing floor. This was in South Arcot. In Mysore in the neighbourhood of Bangalore I was told that it was the custom for women to cut the corn and for men to carry it, and that there it took 15 women a day to cut one acre. Now in England when we cut corn we do it by machinery, and one man driving a cutting and binding machine can, I believe, quite easily cut and bind six acres in a day. But if we put this aside and compare instead harvesting in England as it was before machinery came into use, when corn was cut with the scythe, one man would cut ordinarily between one and two acres per day. Agricultural operations are very varied and it is extremely difficult to make any fair comparison between the efficiency of Indian agricultural labor and English. But making a very hazardous estimate I should say that the produce of an English agricultural laborer's day's work is about ten times as great as that of the Indian, this English superiority being due partly to the Englishman's

greater size and muscular strength, partly to the colder climate which makes energetic labor more possible, partly to the fact that in the development of methods, of working expedition and efficiency have been more sought after in England; and partly to the fact that the English labor has the assistance of more effective tools and a much larger equipment of machinery. I have said this estimate of one-tenth is a very rough one, but in conversation with Dr. Harold Mann, Principal of the Poona Agricultural College, I asked him to form a similar estimate and he confirmed my guess.

I may here say that I am anxious to collect information with regard to the relative efficiency of English and Indian labor when they can be fairly compared. The most favorable comparisons I have yet found are as follows. I was shown over the Buckingham Mills in Madras by the Manager, who is a Lancashire man. Now the Buckingham Mills have first class machinery, and are very efficiently managed, and the manager informed me that the output in the weaving sheds of a day's labor was as compared with Lancashire in the proportion of 1 : 2½. Here we have Indian and English labor competing on level terms, each being assisted by machinery of equal efficiency. Next I was informed by Mr. J. W. Madeley, Special Engineer of the Corporation of Madras, who has much to do with the supervision of excavating work, that three Ubravar sets, each set comprising one man and one woman, do on an average the same amount of work in a day as two English navvies. If we reckon one Ubravar woman to be half a man, as she earns half the wage, three sets are equivalent to 4½ men and we get the same ratio of efficiency here as in the weaving shed, *viz.*, 1 : 2½. The tools and methods used by the Ubravar are different from those used by the English navy.

But Mr. Madeley is of opinion that they are of about equal efficiency, and do not involve any greater waste of muscular effort.

But next notice that the land of South India is partly wet and partly dry. Of the wet land very little produces three crops a year, some two crops a year, but most only one crop. On one crop land agricultural operations are practically confined to about four months in the year, on two crop lands to about seven months in the year; on dry lands to about six months in the year. Taking the land of South India all round it may be said that on the average there is agricultural work for the agriculturist for about five-twelfths of his possible working time. For the rest of the year there is nothing for him to do. As a rule there are no subsidiary industries in which the agriculturist can be profitably employed when his work is not wanted on the land. Now in my old studies in English economic history I came to the conclusion that the chief cause of the deplorable deterioration in the economic condition of the English agricultural laborer towards the end of the eighteenth century was the fact that the industry of handspinning, which had been a subsidiary industry of the agricultural classes, was killed by machine competition. I am inclined to suspect that there may have been in more recent years a serious deterioration of prosperity of the agricultural classes of South India for the same reason, though it may have been counterbalanced or more than counterbalanced by other causes operating to the benefit of the agriculturist, as improved communications, better demand, etc. Notice that a persistence of weaving, when the weavers use machine spun yarn, does not fulfil the same purpose. The weaver commonly is a weaver only, and the ordinary agricultural man cannot occupy idle days by taking to the loom. But when handspinning

was practised I believe, that in India as in England it was a subsidiary occupation of agricultural families.

We have next a third cause of agricultural poverty which I may exemplify by a particular example. In a village near Palni I had a conversation with an elderly ryot who was one of the leading inhabitants of his village. He told me that he owned four acres of wet land which he valued very highly and eight acres of dry land which had but little value. In that particular village the rainfall is small and the soil is a somewhat barren red earth, and I have no doubt that the dry land was as a matter of fact of very little value. Up to the age of fifty he kept clear of debt; in the following ten years he had accumulated debts, which, with the help of unfortunate litigation and compound interest, had swelled to Rs 4000. He told me that usually the whole produce of his four acres was required to feed his family, and that he had no rice to send to the market to pay his kist or the interest on his debt. As his family including sons, daughters-in-law, and grand-children numbered twenty-five people you can see that the statement is a perfectly credible one. Now consider when this man dies, his four acres of wet land and eight acres of dry must be divided between his five sons equally, and they will probably have also in turn grand children as well as children to support in considerable numbers. How then can the descendents do otherwise than fall into deeper and deeper poverty? As long as under Hindu law a holding must be divided equally between sons, and somewhat similarly under Muhammadan law which makes provision for widows and daughters, and all the heirs cling to their portion of land, there is a continual drift towards a more and more minute subdivision of land, till a large proportion of the holders have so little land that they cannot utilise their

labor on it properly even under conditions that I have already pointed out, *viz.*, small output of a day's work and small number of working days in the year. Hence, putting these three causes together, we may say that the Indian agriculturist suffers in an extreme degree from what the English economist calls "chronic under-employment"; and that they necessarily result in very low income, not only for the agriculturist, but also for the bulk of non-agriculturists who are in the main dependent upon agriculture. This it appears to me is the most important cause of the lowness of income which prevails in South India.

We now come to the conclusion of possible remedies. The general line of policy it appears to me to be indicated is that the people themselves should be stimulated to think about their economic condition and form their own plans for improving their status. The first step in this direction, which is a purely preliminary one, should be the expansion and improvement of elementary education, the employment of much better teachers at a higher remuneration who should aim not merely at teaching reading, writing and arithmetic, but at developing the general intelligence, initiative and character of the children.

Next it appears to me that it is very desirable that without in any way interfering with the development of the University system of education which is based, and in my opinion rightly based, on the study of English, there should be side by side with this a continual development of technical education given through the medium of the vernacular, and that this form of education should be allowed to expand just as fully and rapidly as the demand for it grows. The ground having been thus prepared it should be possible to make a direct economic advance through the fostering of scientific agriculture, of village indus-

tries which should be subsidiary to agriculture, and also the development of great urban industries like the cotton industry of Bombay which would offer an alternative means of living to those whose villages are overcrowded.

The above are general views, but it may be interesting to you if I go into some details with regard to the opportunities for definite progress in the particular area that I am speaking of.

(1) It appears to me that there is a magnificent field open for an oil industry. South India produces in great abundance many sources of food oils as ground nut, gingelly, coconut, besides cotton seed, which supplies the best cooking oil, and castor and other plants which supply valuable medicinal oils. However, the nut or seed which produces the oil is itself exported largely and the oil cake is lost to the country, and by exporting your cake you are exporting the fertility of the soil. I am glad to have the information that great developments in this direction are planned.

(2) We have in some parts, as you have in the neighborhood of Bombay, great opportunities for development of hydro-electric power, although not under conditions as favorable for easy exploitation. Nevertheless there is in this a great asset probably capable of a very profitable development.

(3) There are in different parts of South India great deposits of valuable iron ore, the best known being close to Salem. The difficulty in their exploitation is the lack of coal. But probably this difficulty could be circumvented by the development of forestry, which would supersede the scrub jungle with more profitable timber and enable adequate supplies of charcoal to be obtained. Many other advantages would follow from the development of scientific afforestation.

(4) Madras claims the honour of providing in Sir Frederick Nicholson the great pioneer of Indian co-operative credit banking. Much however has to be done before the credit banks are sufficiently developed to make it unnecessary for the great bulk of the ryots to apply to exorbitant money lenders. Further the co-operative credit banking is in my opinion only one of the developments of banking which are necessary to fully utilise and develop the capital resources in the service of agriculture and other industries.

(5) A great deal has been done in the making of roads and railways. But a great deal remains to be done. Consider, for example, the case of a village in the black cotton earth district at a distance of two or three miles from the nearest metalled highroad. The economic benefit to such a village of a good connecting road can be worked out in actual figures of increased efficiency of oxen and is far greater than the necessary cost.

(6) I understand that when Lord Pentland first became Governor of Madras, he made up his mind to do something to improve the cows; and after some four years he succeeded in effecting the first steps which will probably not reach their full utility in less than a hundred years. A good Madras cow will yield about five times as much milk as many of the cows used in some country districts; but then a good Madras cow will not yield one-fourth of the amount of milk supplied by a good English cow. The possibility for improvement here is very great and in my opinion an increased supply of milk would have a very definite result in increasing the physical vigor of the rising generation.

(7) The last subject on which I must touch is a very delicate one. It is notorious that there has been a considerable amount of trouble in the most southerly part of India over the adulteration of cotton. A

great injury has resulted to the ryots in the same district through the adulteration of senna. The reviving indigo industry is also exposed to danger from a similar cause. It is not, I think, sufficiently recognised that the experience of Europe, during the period in which commerce and manufacture were carried on by very small men, was that safeguards against adulteration were urgently necessary in the interest of the very merchants and manufacturers themselves. When new industries were founded in England by craftsmen migrating from the continent, the first petition that these craftsmen made to the Government was commonly that they should be allowed to form a Gild, and to appoint officers to enforce good material, good workmanship and good measure. They knew that the prosperity of their trade depended upon the prestige of their goods and that the temptation to any single producer to lower the quality was very great. The same thing has been discovered by agriculturists. Thus, for example, practically every farmer in Denmark who keeps hens belongs to the Danish Egg Export Association and every egg is marked in such a way as to indicate the village where it was collected and the farmer who supplied it. If my wife in Oxford goes to the grocer's shop and buys a dozen eggs and subsequently discovers that one of the dozen is a bad one she need only to send back to the grocer the portion of shell which has the mark on it, and she is supplied with another egg instead, and the mark is reported to Hull, and from Hull to Copenhagen, and the Danish farmer who supplied the bad egg is fined heavily enough to teach him to be more careful in future.

In conclusion I should like to point out that economic advance will be most surely and rapidly effected by cooperation between the people and the Government, that it is a common interest of both,

and that a feeling of mutual trust between the people and the Government is the moral atmosphere in which economic progress alone can thrive.

[*Note.*—Since this lecture was given I have collected further information with regard to relative outputs of a day's labor in India and English under similar conditions. The ratio of Indian to English output varies from about 7 per cent to 100 per cent or over. I have also obtained evidence which points to the conclusion that the reason why a day's work in harvesting produces so small a result in some districts is that the resident labor force required to complete transplantation if paddy in the proper season, and therefore available for other agricultural operations, is so large that there is no need to be expeditious over harvesting.

An instance is given above in which the rent received by a pattadar is twentysix times as much as the kist. This is easily surpassed by a village in South Arcot where dry land assessed at Rs. 3 per acre, when provided with wells and used for tobacco growing, is leased for Rs. 300 per acre, and sells at Rs. 6,000 per acre.—G.S.]

A VIGNETTE FROM PETER MUNDY

E. A. MOLONY, I.C.S.
COMMISSIONER, AGRA

As in so many other matters so also in the matter of famine there always has been and probably always will remain an ineradicable tendency to magnify the past and depreciate the present. The result of this tendency is accentuated by the fact that officials responsible for the prevention and relief of famines naturally think that it is better to be on the safe side and in doubtful cases classify a crop failure as scarcity and scarcity as famine rather than run the risk of underestimating the gravity of the situation and of starting relief too late.

There is therefore no cause for surprise when we find that the number of scarcities and famines officially recognised does not diminish. The public conscience is now more alert and would not tolerate conditions that in previous years would have passed without comment.

It will therefore not be out of place to consider the record of a famine which occurred in the time of the Emperor Shahjahan from which we may draw deductions as to whether of late years we have been

travelling on the right road, whether we have made progress and whether we can yet catch a distant glimpse of the goal at which we are aiming namely the total prevention of famine.

A perusal of the account recorded by Mr. Peter Mundy leaves us with good cause for satisfaction that we have advanced so far since his time and gives us every ground for feeling that we are progressing on the right lines and that if we continue on our present course without slackening our efforts we shall some day arrive at the much to be desired goal.

We are indebted to the Hakluyt Society for editing and printing the travels of Mr. Peter Mundy who served in India from September 1628 to February 1633 as a factor of the East India Company. During this period Mundy travelled from Surat to Agra via Burhanpur, from Agra through Aligarh to the Ganges, from Agra to Patna and back and then again from Agra via Ajmere and Ahmadabad to Surat.

The first mention of the famine in his journal is given in the following words:—

“About the tyme of our departure for Agra began a famine, the secondary cawse thereof the want of rayne this last season, and much feared will prove very greivous, poore people begininge to die for want of sustenance. God shewe mercie on all men”.

We cull the following remarks about the famine from the same journal.

Relation VI

A journey from Suratt in Guzaratt (Gujarat) to Agra in Hindostan, whether Peter Mundy and John Yard were enordered and sent by the worshipfull Thomas Rastell, President Etts. Councell, to assist Mr. William Fremlen there resideinge in the honourable companies affaires, as followeth.

The 11th November, 1630. Wee departed from Suratt att eveninge, and¹ that night came to Cumwarra (Khumbaria) (3 course), where wee mett, as wee expected, one Mirza Mahmud Saphee (Mirza Mahmud Safi), a Persian, travellinge to Brampore (Burhanpur) to the Kinge, unto whome the President had recommended us for our better safetie and accomodation in soe hazardous a tyme; for there was a great famine begun, causeinge the highwayes to be as it were unpassable for Theeves and other whoe infested it, not so much for desire of riches as for graine ett. food.

The 14th November, 1630. Wee came to Kirka (7 course), a poore Towne, halfe burnt upp and almost voyd of Inhabitants, the most part fiedd, the rest dead, lyeing in the streets and on the Tombes.

The 16th November, 1630. In the morning wee departed from thence, and that eveninge wee came to Dayta.

Children sold or given away

In this place the men and weomen were driven to that extremitie for want of food that they sold their children for 12d. 6d. and pence a peece; yea, and to give them away to any that would take them, with manye thancks, that soe they might preserve them alive, although they were sure never to see them againe.

The 18th November, 1630. From Baadore wee came to Netherbarre (Nandurbar), (12 course), a greate place, where wee were much troubled to finde a roome convenient for our litle Tent, by reason of the number of dead bodyes that lay scattered in and about the Towne. Att last wee tooke up our lodg-inge amonge the Tombes. This place Mirza chose for us, whoe alsoe invited us to dine todaye.

¹ Course—Kos, which is taken as approximately equal to 1½ English miles.

The 19th November, 1630. Heere wee stayed all day, where Mirza supplied himselfe with some needfull provision for his Companye, there being to be had heere, although att unreasonable rates. All this day our noses were infested and our bodyes almost infected with a most noysome smell, which after search, wee found to come from a great pitt, wherein were throwne 30 or 40 persons, men, weomen and children, old and younge confusedly tumbled in together without order or coveringe, a miserable and most undecent spectacle. Noe lesse lamentable was it to see the poore people scrapeinge on the dunghills for food, yea in the very excrements of beasts, as horses, oxen, etts. belonginge to travellers, for graine that perchaunce might come undisgested from them, and that with great greedienesse and strife among themselves, generallie lookeinge like anatomies, with life, but scarse strength enough to remove themselves from under mens feete, many of them expireinge, others newe dead. This was their estate in every streete and corner; and from Suratt to this place (in a manner) all the high way was strowed with dead people, our noses never free of the stinck of them, especially about townes; for they dragg them out by the heeles starke naked, of all ages and sexes, till they are out of the gates, and there they are lefte, soe that the way is halfe barred upp. Thus it was for the most part hitherto.

The 20th November, 1630. The caphila consisted of such a multitude of carts and people, which drew to such a length, that hetherto wee could never see both ends from one place, and yett increasinge daylye.

For you shall understand that, att our comeinge out of Suratt, Mirza and all his people, our selves and all the strangers that came with us from thence were not in all 150 persons and about 15 or 20 carts with some cammells,

And now I thinck there were noe lesse then 17 or 1800 people and 250 or 300 carts, besides oxen and buffaloes of burthen. For the countrie (people), hearinge of our comeinge this waye, resolved, for their better securitie to take hold of this oppertunitie to save their lives by avoydinge the famine and repaireinge to places of better releife. Soe that as wee passed their townes, they dayly joyned to us by multitudes, and likely soe to continue untill our arrivall att Brampoore (Burhanpur). Heere wee also stood on our guard, fearinge to bee sett upon either by theeves or famished people.

The 23rd November, 1630. Wee passed through a towne called Firpoor (? Sherpur) about which all the high waies were soe full of dead bodyes, that wee could hardly passe from them without treadinge on or goeinge over some, and from thence to Talnear all the way strewed with them. Hard by this towne was a litle garden watered with a well, which was the only place that gave the eye content in rydeinge neere 200 myles.

The 25th November, 1630. Haveinge remained one day moare att Talnear wee departed thence in the morninge. The Governour of the place with a good company of horse and foote accompanied us about 3 miles out of towne and then returned, leaveing 2 of his cheife men to conduct us further; and after a while, they also departed, Mirza haveinge given them an ename, unto which wee did contribute two rupees. Comeinge neere Chopra (Chopda) (16 course), wee sawe a great flock of sheepe and goates, which to us all was as comfortable as strange. The Governour of this place came out also to meete Mirza, expresseing great kindenesse, feastinge him in his castle. The bazaree or markett was prettie well furnished with provision both for horse and man, which was a great ease to our mindes. Neverthelesse the people lay dead upp and downe the streets.

The 27th November, 1630. Wee proceeded to Beawly (Yaval or Byaval), (11 course), a bigg towne with a great although ruynated castle. This was the first place about which wee saw any fruitefullnesse, heere beinge feilds of paan (pan) or beetle (betel) sugar canes and beares, a fruite as bigg as a damson, which being ripe, is yellowish and in tast pleasant, somewhat like unto apples.

The 28th November, 1630. From thence wee came to Navee (Navi), (8 course). By the way was discovered one of our Caphila, whoe would gett a Course before, and there stand as though hee were sett there for a watchman, makeinge manye of the poore people pay Jaggatt for their Carts, but beinge found out, hee was soundly chawbacked, the mony taken from him, and made to runne fast pinioned that daie. Heere in the midle of the Bazaree lay people new dead and others breathing their last with the food almost att their mouthes, yett dyed for want of it, they not haveinge wherewith to buy, nor the others so much pittie to spare them any without money (there being no course taken in this Country to remedie this great evill, the rich and stronge engrossinge and takeinge perforce all to themselves)."

On the 30th November Mundy reached Burhanpur which was well supplied owing to the presence of the Emperor.

Thence his route turned north into Malwa and he reached a better country. The entry of the 7th December 1630 runs as follows:—

"The 7th December, 1630. Now in our journieinge (Burghkheesara [Barh ki Sarai, for Bargaon], 4 course), wee began to bee freed from the sadd spectacle of dead men, but their places were supplied by innumerable Carkases of dead beasts, as elephants, cammells, horses, buffaloes, oxen, etts., but the greatest number were of cammells.

The 10th December, 1630. (Charwa, 10 course). The countrie now began to shew it selfe with a litle better countenance then hetherto. The small townes and villages as wee passed were stored with graine in the streets or bazares, and all the way as wee went wee mett with many thousands of oxen laiden with corne goeing for Brampore.

The 22nd December, 1630. By the way, sittinge on the topp of a litle hill, wee sawe a baniare and many thousand of oxen laiden with provision. It was att least $1\frac{1}{2}$ miles in length, and as many more returninge emptie to bee reladen, and all the face of the earth, as farr and distant as wee could descerne, covered with greene corne. But of all this aboundance poore Guzeratt was never the neere, where there was most neede, it beinge all sent to Brampore to supplie the kings Laskarie [lashkar] (or armie) lyeing there against Decan as aforementioned. This place (Mogolca Sara [Mughal Sarai], 6 course) is in the province of Malwa."

After this Mundy saw no more of the famine till his return to Surat over two years later. The entry in his journal runs as follows:—

The 25th May, 1630. About nine a clock wee came to Bereawe (Variao), being 16 course. Leaveing all the carts att the river side, I with some other English went over, and came to Suratt to the English howse, where I made an end of my tedious journey from Agra, from whence I departed the 25th February and arrived heere the 25th May as above said, have gon and travelled 414 corse, vizt.

From Agra to Seedpore (Siddipur) 284 great corse,	
att $1\frac{1}{2}$ mile English per corse amounting	
to miles	426
From Seedpore to Suratt 130 small course, att $1\frac{1}{2}$	
mile English per corse amounting to miles	172 $\frac{1}{2}$
Corse 414 makes miles	598 $\frac{1}{2}$

At my arrivall heere there were but few liveing of those I left heere att my departure, the rest dead with the mortall sicknesse that imedeatly followed the famine. The names of those liveing att my departure are as followeth:—

+The worshipfull Thomas Rastall, President
 +Mr. John Skibbowe, President
 +Mr. Gore, the Presidents brother-in-law
 ×Mr. Joseph Hopkinson, President
 +Mr. James Bickford
 +Mr. Richard Barber
 +Mr. Arthur Suffield
 Mr. Henry Glascocke
 +Mr. Ralph Rand
 Mr. John Bangham
 ×Mr. Joseph Readinge
 +Mr. Nicholas Wolley
 Mr. Thomas Wilbraham
 +Mr. Thomas Smith, Secretary
 +Mr. John Glanvell
 +Mr. Clement Dunscomb
 +Robert Davison, Steward
 Thomas Ashwell
 ×James Woode
 +Thomas Whitelocke
 +Mr. Henry Quarles

Of 21 persons last before named, there are only 4 remaineinge whoe are unmarked; 14 of those marke + dyed before my arrivall and 3 with this marke × since. besides the inferiour sort according to this proportion. The like tyme was never seene in India, there being scarce one man in all Suratt-howse (the English factory) able to write or sett his hand to paper (sometymes). Theis were only by sicknesse, but the famine it selfe swept away more then a million of the comon or poorer sort. After which, the mortallitie

succeedinge did as much more amongst rich and poore. Weomen were seene to rost their children; men travelling in the way were laid hold of to bee eaten, and haveing cut away much of his flesh, hee was glad if hee could gett away and save his life, others killed outright and devoured. A man or woman noe sooner dead but they were cutt in peeces to be eaten. Thus much by common report (because I was not present). But att my returne I found the countrie in a manner made desolate, scarce 1 left of 10, as by instance of the weavers, for whereas formerly they had brought them (the factors) 30, 40 or 50 corge [score (of pieces of cloth)] a day, they could now scarce gett 20 or 30 peeces; this in Baroach (Broach). Att Suratt none att all, and in Brodra (Baroda) noe factorie att present. In my opinion it will hardly recover it(s) former estate in 15, nay, in 20 years; I meane Guzaratt."

That Mundy's account is not exaggerated may be shown by a translation from the Badshahnama.

Famine in the Dakhan and Gujarat

During the past year (1629-1630) no rain had fallen in the territories of the Balaghat, and the drought had been especially severe about Daulatabad. In the present year also there had been a deficiency in the bordering countries, and a total want in the Dakhan and Gujarat. The inhabitants of these two countries were reduced to the direst extremity. Life was offered for a loaf, but none would buy; rank was to be sold for a cake, but none cared for it; the everbounteous hand was now stretched out to beg for food; and the feet which had always trodden the way of, contentment walked about only in search of sustenance. For a long time dog's flesh was sold for goat's flesh, and the pounded bones of the dead were mixed with flour and

sold. When this was discovered, the sellers were brought to justice. Destitution at length reached such a pitch that men began to devour each other, and the flesh of a son was preferred to his love. The numbers of the dying caused obstructions in the roads, and every man whose dire sufferings did not terminate in death and who retained the power to move wandered off to the towns and villages of other countries. Those lands which had been famous for their fertility and plenty now retained no trace of productiveness The Emperor in his gracious kindness and bounty directed the officials of Burhanpur, Ahmadabad, and the country of Surat, to establish soup kitchens, or almshouses, such as are called langar in the language of Hindustan, for the benefit of the poor and destitute. Every day sufficient soup and bread was prepared to satisfy the wants of the hungry. It was further ordered that so long as His Majesty remained at Burhanpur 5000 rupees should be distributed among the deserving poor every Monday, that day being distinguished above all others as the day of the Emperor's accession to the throne. Thus, on twenty Mondays one lac of rupees was given away in charity. Ahmadabad has suffered more severely than any other place, and so His Majesty ordered the officials to distribute 50,000 rupees among the famine-stricken people. Want of grain and dear-ness of grain had caused great distress in many other countries. So under the direction of the wise and generous Emperor taxes amounting to nearly seventy lacs of rupees were remitted by the revenue officers—a sum amounting to nearly eighty kros of dams, and amounting to one eleventh part of the whole revenue. When such remissions were made from the exchequer, it may be conceived how great were the reductions made by the nobles who held jagirs and mansabs.

(Translated from the *Badshah-Nama*, 1. 362). Elliott, *Hist. of India*, VII. 24-25.

From which narration we men of later days may draw warning and encouragement and a stimulus to persevere till the industrious cultivator can face a failure of the monsoon without fear of the spectre of famine.

MUGHAL CURRENCY AND COINAGE

PROFESSOR S. V. VENKATESWARA, M.A.
KUMBAKONAM, MADRAS PRESIDENCY

The Metallic Currency

Akbar was the founder of the Economic system of the Mughal empire. His currency policy was largely based on that of Sher Shah, but he adopted copper for both the money of account and the standard of value. His reason was that the fluctuations in the value of the precious metals were the least remarkable in the case of copper. The ratio of silver to gold had been 8 : 1 in the thirteenth century, 7 : 1 in the fourteenth, and 9·4 : 1 in the sixteenth century, whereas the ratio of copper to silver had steadily fallen from 73 to 64 : 1.

The metallic currency of the Mughal emperors consisted of gold, silver and copper. The copper *dam* weighed 167 *rattis*¹ and the silver *rupee* 178·25 grains; 40 *dams* exchanged for one *rupee*, and 12 *rupees* for the gold *mohur*. The lowest money of account was the *cheetel* ($= \frac{1}{25}$ *dam*). There were numerous coins of intermediate value also in circula-

¹ This weight was less than that of Sher Shah's coinage. Mr. Taom's (*Chronicles of the Pathan Kings of Delhi*, p. 332) estimates Sher Shah's rupee and dam at 178·25 and 323·56 grains respectively. But Sher Shah's coins often exceed this weight. One of his dams weighed 329 grains. The standard of Sher Shah was probably 180 grs. for the rupee and 176 rattis (= 330 grs.) for the dam. The Akbar Shahi rupee and dam were therefore less than Sher Shah's in weight. (See Wright: *Catalogue of Coins in the Indian Museum*, Calcutta, Vol. II., part 1.)

tion—the half and quarter *mohurs*; and pieces equal to $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$ of a *rupee*. Coins were round or square in form, and were legal tender to any extent. There were about 70 mints in all, and copper and silver were coined freely subject to a small charge by the state. The coinage of gold was regulated every month by orders issued by the emperor. The details of the minting are given overpage in tabular form:—

PARTICULARS	GOLD				SILVER						COPPER	
					FINE			INFERIOR			Dams	Cheetels
	Mohurs	Rupess	Dams	Cheetels	Rupess	Dams	Cheetels	Rupess	Dams	Cheetels		
(a) Value of bullion	100	...	...	...	950	...	...	950	...	...	1044	...
(b) Minting Charges :—												
Materials	...	2	18	12½	2	22	12	4	28	...	33	10
Wages	...	5	8	8	...	10	15	5	21	12½	15	8
(c) Duties to the State	...	6	10	12½	50	13	...	50	24	...	59	...
(d) Merchants' profits	5	25	24	17	3	21	10½	4	29	...	18	19
TOTAL = Value of coins minted	105	39	22	...	1006	27	12½	1015	22	12½	1170	12

The above figures may be interpreted by taking the coinage of rupees from fine silver as an example. An amount of bullion sufficient to be coined into 1,006 rupees and 27½ dams costs in coining on the average 56 rupees 27½ dams in mint charges, duty, and merchants' profits, leaving 950 as the number of rupees obtained by anybody who owned the bullion and presented it for coinage. Bullion which made 1006·7 rupees used to exchange therefore, for Rs. 950 in money.

Mints

According to the *Ain-i-Akbari*¹ (1594) Akbar allowed gold to be coined only in four places—the mints of Agra, Ahmadabad, Kabul and Murshidabad—with a view probably to exercising an effectual control over the coinage. The mints of ten other cities also were allowed to coin silver—Allahabad, Ujjain, Surat, Delhi, Patna, Kashmir, Lahore, Multan, Tandah. Copper was coined in these 14 and in 28 other places. This account of Akbar's mints is given by Abul Fazl, but it is defective. Dr. Vost² has discovered a few coins dated 976 or 978 A. H. which were minted at Bahraich, a place omitted in Abul Fazl's list. Mr. Lanepoole³ was inclined to doubt whether Akbar had coined to any great extent in copper especially as *cowries* and *almonds* formed the token currency. But Mr. Rodgers⁴ has brought to light the extensive issues in copper both of Akbar and of Jahangir. The coins of the latter were issued mostly in Kashmir and Afghanistan which were evidently health-resorts of the Emperor from the trying climate of the plains. So plentiful indeed were the copper coins that Shahjahan hardly felt the need for new issues and the copper coins of his time are rare. But he issued square coins in white base metal, perhaps to supersede the Portuguese coins of Sopara⁵.

Profits of coinage

The profits of coinage were so extensive that Aurangzeb attracted bullion to the mint by imposing

¹ Abul Fazl (*ibid.*) says that in the beginning of Akbar's reign gold was coined 'in many places.' The object of the restriction is not explicitly mentioned.

² Journal of the Royal Asiatic Society, London, 1895, pp. 40-43.

³ Lanepoole: *Catalogue of coins in the British Museum*, (London), Introduction, p. xc.

⁴ Journal of the Asiatic Society of Bengal, 1895, pp. 129-193; also 1896, p. 222.

⁵ See Wright: *Catalogue of coins in the Indian Museum, Calcutta*, (Vol II., part 2) the descriptions of coins and the plates.

duties on the purchase and sale of silver in the country.¹ He is said to have derived a profit of 11 lakhs a year from his mint at Surat alone.² It must be said to the credit of his successors that they did not stoop to debase the coinage in spite of all their political and economical difficulties. They sold the East India Company the right to issue coins at Bombay in 1717, at Madras in 1742 and at Calcutta in 1757. The company's coins were copies of Mughal issues—*e.g.*, those issued by Shah Alam at Murshidabad in 1793.

Features of the coins

The coinage of the Mughal period is interesting from many points of view. The coins of Akbar are splendid specimens of the engraver's art, unsurpassed except by those issued by his son, Jahangir. They display his restless yearning after innovation. He gave up the broad thin pieces of the Trans-Oxine model, and adopted the Indian way of coining thick dumpy pieces. He first tried oblong coins with scalloped ends and lozenge shaped coins, known as *mihrahi* because they resembled the arch of a prayer niche. But his eccentricity or love of display led to his issuing square coins on the model probably of those issued in Kashmir and in Malwa. The *Kalima* on the coins appears in a variety of ways. It is sometimes in wavy pentagon, quatrefoil, triple border or diamond. Sometimes it is in square, triple, curved, inscribed in a triple circle or enclosed in ornamental border. On other coins it is in double square with dots between in sixfoil, or in double foliated or multifoil pentagon. A coin of the Lahore mint

¹ "The duty was on 'all silver and gold that should be sold by one Hindu merchant to another.' which would necessarily 'very much prejudice trade'" (The *Diaries of Streymskam Master*, Edited by Sir R. C. Temple Vol. I., p. 30).

² Manucci: *Storia Do Mogor* II. 417. (Irvine's translation)

has a bowman with a veiled woman behind.¹ It probably represents the conquest of Bijapur and the resultant marriage of the Sultan's daughter to Prince Daniyal. Akbar used images very sparingly on the coins—perhaps only on three very rare types in gold. The coins dated in the *Ilahi* era, with Persian instead of Arabic names of the month and the ambiguous legend '*Allahu Akbar*'² illustrate his adherence to the *Din-i-Ilahi*. Jahangir gave up these 'aberrations' of Akbar, but retained the insertion of Persian couplets on his coins. The latter depict him goblet in hand, and the later ones bear the name of Nur Jahan by the side of the emperor's. Alone of all the Muhammadan rulers of India he placed his portrait on his coins. The freak of the emperor is seen in his beautiful 'Zodiacal' coins. Shahjahan's coins are large in size, and Aurangzeb's coins are orthodox and monotonous.

Testimony of an English traveller

Chaplain Terry³ has some fine appreciative remarks about the coinage of this period, and I may be permitted to extract a paragraph. "The coin or bullion brought thither from any place is presently melted and refined and the Mughal's stamp (which is his name and titles) put upon it. The coin there is more pure than in any other part of the world, being (as they report) made of pure silver without any alloy [alloy]; so that in the Spanish money, the purest of all Europe, there is some loss. They call their pieces of money rupees, of which there are some of diverse values, the meanest worth 2s. 3d. and the best 2s. 9d. sterling.⁴ . . . 3d. is the least piece of silver

¹ Lanepoole, *op. cit.*, Plate V. No. 172.

² See "*Akbar and the Fine Arts*" by the present writer in the 'Indian Review' for 1913.

³ Page 119. (Hakluyt Society's Edition).

⁴ Hence the different rates given by travellers e.g., 2s. 3d. (Roe I. 95), 2s. 6d. (Roe I. 111) and 2s. or 2s. 6d. (Purchas, p. 111) 2s. (Manucci II. 415).

current in those countries and very few of them to be seen.¹ That which passes up and down for exchange under this rate is brass or copper money which they call *pices*, whereof three or thereabouts countervail a penny. Those *pices* are made so elastic and so thick as that the baser metal of which they are made, put to other uses, is wellnigh worth the silver they are rated at. Their silver coin is made round or square, but so thick as that it never breaks nor wears out. They have pure gold coin likewise, some pieces of great value; but these are not very ordinarily seen amongst them."

Money of account—Current money—Standard of value

It should be remembered that though the copper *dam* was the money of account there were current gold and silver coins of various denominations. There were rupees worth 38 dams in which officers were paid part of their salary.² Abul-Fazl³ says that the best coin of his time had 15 of gold to 1 of alloy and the worst coin 1 of gold to 15 of alloy. But no coin so base as the latter has come down to us. The value of the rupee differed with the amount of precious metal contained in it. Sir. T. Roe, (1615) and Chaplain Terry mention rupees of 2s. 3d., 2s. 6d., and 2s. 9d. In Streynsham Master's⁴ time (1675-80) the newly coined *Sikka* rupee was at a premium of 4 to 6 per cent. About 1697⁵ Aurangzeb passed an order to the effect that rupees whose intrinsic value was less than 4s. 8 should pass current as full weight rupees. Manucci is careful to say that the shroffs and bankers were loud in their pro-

¹ Terry is not correct in this statement. Abul Fazl says the lowest piece of silver coined was the *sooky* (= 1/20 Re.). Gladwin, *op. cit.*, p. 32.

² *Ain-i-Akbari* (Gladwin I. 34).

³ For regulations about 'blanching' money and assessing the actual currency see *ibid.*

⁴ *Diaries of Streynsham Master* Vol. I. p. 393. n.

⁵ Manucci: *Storia Do Mogor*.

tests and had to be cowed into submission, but he does not give an account of the inevitable application of Gresham's law leading to the speedy disappearance of the full-weight rupees. So too there was some difficulty in selling the gold *mohur* at its face value. Manucci takes 150 *mohurs* (small) as worth Rs. 520 instead of Rs. 525. Streynsham Master¹ wrote in 1680 that it was easier to sell *mohurs* to a private merchant than in the open bazaar. In one of his letters he actually takes the *mohur* (large) as worth only Rs. 14 instead of Rs. 15. It may be assumed that the current gold coins were sweated by the money-changers to some slight extent not easily discovered by the common people.

Besides the precious metals, cowries in Bengal and Orissa and almonds in Bombay were used as money to a great extent.² In some parts, *e.g.* Kashmir, rice was the standard of value.³ Cowries came from the Maldives and were used for petty transactions from as early as the fourth century. Stavorinus⁴ bears testimony to the use of almonds at Surat. Abul Fazl⁵ gives the table:—

Re. 1	10 Khawan
	160 or 200 panams
	640 or 800 boories
	3,200 or 4,000 gundas
	12,800 or 16,000 cowries

Pyrard de Laval⁶ (1602) could purchase 20 measures of rice for 12,000 cowry shells. Bowrey⁷ found the rupee worth 3,200 cowries. In the eighteenth century there were two kinds of cowries used in Bengal, according to the *Seir Mutaquerin*. The revenues of

¹ Master I. 501.

² Manucci II. 45.

³ *Ain-i-Akbari*: Gazetteer of Kashmir.

⁴ Lane-poole p. xc.

⁵ *Ain-i-Akbari*: Gazetteer of Bengal.

⁶ Laval in 'Purchas' (Hakluyt) IX, 56.

⁷ Bowrey in 'Master' I. 393 n. and 394.

government were paid in Orissa in the harder sort of cowries that came from the Maldives. The softer sort came from East Africa, and 5,200 of these went to the rupee in Bengal. Cowries were used even in big transactions and seem to have been unlimited legal tender. The East India Company¹ once paid Rs. 500 in cowries in 1680, and there were a large number of women employed by the state for counting cowries, in the declining days of the Mughal empire. As there were such minute pieces of money adapted for the smallest transactions, there were also, at the other extreme, huge pieces of coined gold and silver worth as much as Rs. 1,000 a piece.² These big pieces could hardly have served as currency in ordinary times. They were stored in the Imperial cellars and very probably seldom saw the light of day.

Credit Instruments

There were also instruments of credit in use. In the first place must be mentioned the cheques³ issued by the government to contractors. These cheques were drawn on a local treasury, but the treasury officer there had the power of passing them on for payment to some other local treasury. The usual procedure was to sell the bill for a consideration to some banker. In any case the officer who actually honored the cheque could get some commission or bribe for himself. Secondly, there were the *hundis* or bills of exchange issued by bankers. These enabled people to transmit money from one place to another free of cost without the intervention of the precious metal. The merchant issuing the *hundi* had a branch shop in the locality to which money was to be sent, or had a fellow-tradesman

¹ 'Diaries of Master' II. 221.

² Hawkins: Purchas III. 31.

³ Blochmann's note in *Ain-i-Akbari* I. 134. (Translation by Blochmann and Jarrett).

there to accommodate him by honoring his bill. Thirdly, there were the promissory notes and receipts in advance given by the state employees whose pay was in arrears so often. Soldiers assigned their pay for a small fraction of 20 or 25 *per cent*¹ of the amount, which was actually paid by the village shylock. Fourthly, there were the transactions by barter of which there are numerous instances in all the books. One of the greatest difficulties of the early European merchants in India related to their ignorance of the kind of commodities Indians would take in exchange for those that they had for sale. In 1676, for instance, Streynsham Master paid Indians 'half in money and half in goods'. But in 1680 the merchants would not take the East India Company's broad cloth and lead and had to be paid 'in current money or in treasure'.²

Economic ideas of the time

There is evidence of a great deal of money and bullion being hoarded by the people. This hoarded wealth was buried underground and was unearthed now and then to become the property of the crown. At least one traveller has left on record that Indians were under the sway of the mercantilist doctrine which possessed the minds of Europe in this period. "It is lawful for any nation to bring in silver and fetch commodities, but a crime not less than capital, to carry any great sum thence." But Terry³ who made this remark does not tell us whether any occasion arose for the export of silver from India. There is no doubt that throughout the period of our study the balance of trade was always favorable to India⁴ and had to be restored by actual imports of specie

¹ Scir Mutaqueria III. 35.

² Master II. 223.

³ Purchas IX. 23.

Manucci Storia II. 418. Hawkins in Purchas III. 42, 43.

into this country from abroad. Nor do I find any authority in Indian writings for the statement that export of silver was visited with capital punishment. Perhaps the traveller was tacitly assuming in the case of India those conditions and circumstances which existed in his own country. Perhaps he accounted for the natural inflow of bullion into India by the political principles by which the governments in Europe sought artificially to attract specie into their lands. In any case, it is a relief to turn from the primitive economics of hoarding and mercantilism to any traces of true currency policy in the indigenous writings of the time. "Gold, my son, is fit to be enjoyed. For hoarding, gold is no better than stone." This was an old Indian saying which expressed the common sense of the ordinary people, for Badauni¹ who quotes it was rather a pious Mussalman than a man of the world, much less an economist. If hoarding there was, it was due less to economic ignorance than to the prevalent desire for ornament and to the general lack of security habitually assumed by the people. This will be clear to those who bear in mind that in spite of the abundance of gold and silver, in spite of the facilities for converting them into current coins, the rate of interest remained so high as 15 or 20 per cent.²

¹ *Muntakh-ab-ut-Tawarikh* of Abdul Khadir Badauni, Vol. II. p. 75 (Asiatic Society of Bengal's publication).

² *Diaries of Streygham Master* I. 137.

SIZE OF LAND HOLDINGS IN THE BOMBAY PRESIDENCY¹

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The subject of this paper on the size and constitution of land holdings in the Bombay Presidency is usually referred to as "the sub-division of holdings", but it presents two distinct features. The first is that with the increase of population many of the holdings tend to become very small, and the second is that the holdings, whether large or small, tend to become broken up into a number of separate plots, often situated at a considerable distance from each other. These two tendencies differ both in their origin and in their results, and it is necessary to distinguish carefully between them. I therefore propose to call the first *sub-division of holdings*, and the second *fragmentation of holdings*.

Sub-division of holdings refers only to the size of the holdings. It must tend to occur in any thickly-populated country when the number of persons dependent directly on the land increases, but the tendency is found to bear a very direct relation to the law of inheritance in force in the country. In this Presidency

¹ This paper was read before the conference held by the Board of Agriculture in India, at Poona, on the 10th December, 1917. It was printed for official use and circulated prior to the meeting to members of the Board and visitors.---[Ed.]

it is governed by the Hindu law of inheritance which has, I believe, the most fissiparous tendency of any known law of inheritance, giving each male member of a family an equal share of the family property from the time of his birth, and allowing him to claim a partition of his share at any time. In some countries the idea of considerable sub-division of land finds favor as tending to a widespread and equitable distribution of wealth and opportunity amongst a large number of persons, and as giving to a large proportion of the people who cultivate the land a direct interest in and attachment to the land. It will thus be realised that there are a considerable number of general arguments in favor of the sub-division of holdings, and it is only when this sub-division becomes very excessive that remedial action is clearly indicated.

Fragmentation of holdings, on the other hand, is an unmitigated evil for which, I believe, no advantages can be claimed. It consists of the splitting up of a single holding into a number of separate plots, often situated at a distance from each other. It arises not directly from the Hindu law of inheritance, but from customs connected with the Hindu law of inheritance, and has its origin in a desire to provide an automatic method of securing a mathematically accurate partition of a holding amongst the heirs. Thus supposing that a man dies holding nine acres of land divided into three plots of three acres each, and leaves three sons, it might be hoped that each son would take a solid plot of three acres, settling with the others in money the balance arising from any difference in the quality of the different plots. This, however, seldom happens; but, on the contrary, each plot would be split up into three sub-plots of one acre each, and a sub-plot in each place assigned to each heir, so that the three hold-

ings made out of the original nine acre holding would consist each of three separate plots of one acre each. Nor does the inconvenience end there, for the partition is effected in such a way as to secure an equal proportion of good and bad land in each plot, and often leads to a division into long narrow strips. In the case of rice fields consisting of a terraced slope this fragmentation is very marked, for each heir will aim at getting a share on each terrace, and sometimes there is an arrangement for the heirs to take each share, turn and turn about, so that the property owned by each man in any plot of land amounts to the right of temporary cultivation rather than the ownership of the land. This custom of fragmentation bears to the Hindu law of inheritance much the same relation that the English custom of primogeniture bears to the English law of entail, and together the Hindu law and custom have resulted in splitting up the land into an enormous number of plots in which a large proportion of the population have some share, however small, just as in England the law and custom taken together have resulted in the concentration of compact estates in the hands of a very few persons. This custom of fragmentation is not peculiar to India, but occurs also in France, the country where the law of inheritance most closely resembles the Hindu law, with the result that in some localities in France the size of an individual share has been reduced to a single vine or a single tuft of lucerne grass. In Switzerland also and parts of Germany the evils of fragmentation were a matter of common experience.

In calling attention to the excessive sub-division and fragmentation of the land in this Presidency it may be stated, once and for all, that there is no intention of opening the discussion of the relative economic advantages of large and small farming. The

spirit of Hindu law and the spirit of Indian agriculture favor a wide distribution of the land and its cultivation by peasant-farmers, and it is not in any way desired to suggest that the formation of large estates, worked on a capitalistic basis, would be more suitable or desirable for the people of this country either from a social or economic point of view. All that I desire to make clear is that in this Presidency the principle of sub-division and fragmentation has been pushed so far that the land has been parcelled out in such a way that in many cases grave difficulties are presented to its effective cultivation, even by existing methods. The distribution of the land amongst the peasants is such that a large and increasing proportion of them have not got an economic holding, and this presents a fundamental obstruction to the introduction amongst them of improved technical methods or economic organisation calculated to increase the quantity and value of the outturn and to cheapen its production. It is not with a view to interfere with the fundamental conception of the peasant-farmer that any suggestions are made, but in order to render possible the creation and maintenance of small but economic holdings on which a peasant-farmer can take adequate advantage of the natural facilities which exist, and improve his technical and economic outfit to an extent that will enable him to meet the competition of farmers in other countries, and so to maintain his family in comfort and his holding intact for posterity. It is with a view to make suggestions of this kind that I have drawn up three statements which I attach as Appendices to this paper: Appendix I, showing the extent of sub-division and fragmentation of holdings in this Presidency, and the disadvantages resulting therefrom; Appendix II, giving an account of similar phenomena in other countries and the remedies that have been applied there;

and Appendix III, making definite proposals for remedial action in this Presidency.

For a general discussion of the adverse effect which this excessive sub-division and fragmentation of holdings have upon the status of the cultivators and the production of crops I would venture to invite a reference to pages 50 to 55 of my *Rural Economy in the Bombay Deccan*, and for a more detailed statement of the facts to Appendix I. In this Appendix I have attempted to give illustrations, taken from various points of view, of the existing state of affairs in the Konkan, Gujarat, West Deccan and East Deccan. In the Konkan no attempt has been made to select extreme cases, and the cases cited may be taken as typical. Much more extreme cases might have been found, and Mr. J. A. Madan informs me that the size of individual plots in the Ratnagiri District is sometimes as small as a quarter of a guntha (1 guntha equals one-fortieth of an acre), and that he knows of a case where a holding of $2\frac{1}{2}$ gunthas was partitioned amongst five brothers, so that each brother got a holding of half a guntha, and each of the five brothers cultivated each of the five plots of half a guntha in rotation. Such extreme cases amount to an absurdity, but even taking the facts shown in case No. 1 of Appendix I, the serious hindrance to effective production may be realised. I do not propose to refer to the difficulty of maintaining records of these innumerable sub-divisions, of collecting revenue from and keeping accounts for each of these minute plots, or of the task of separately demarcating them, as is being attempted. These are matters which merely cause difficulty to Government, and it is to the difficulties which are caused to the cultivators that I wish to direct attention. The essential thing in rice cultivation is to have the water under control, to get water from streams when rain is scanty, and to

drain off the surplus water when rain is excessive. With the present distribution of the land in tiny plots amongst numerous holders with divergent interests this becomes impossible, and consequently great loss results to all concerned. Improvements cannot be undertaken; actual tillage operations become very difficult; fencing is out of the question; no man can live on his farm when it is scattered into many plots, nor can he guard more than one plot at the same time; causes of friction between neighbors inevitably arise and often develop into standing feuds. These are some of the necessary attendant evils to which, I think, anyone who is closely connected with the country-side will bear witness. In the case of elaborate improvements such as the reclamation of salt lands, which depend on the maintenance of a substantial outer embankment and a system of sluice gates and drains, it often happens that the work undertaken by one man when the original holding was intact is allowed to go to pieces for want of repair when the holding becomes sub-divided, so that everyone concerned is a loser.

In Gujarat the problem differs greatly in different tracts. In the parts that grow cotton and jowari the situation is not usually acute, as is shown in cases Nos. 7 and 8, but in actual or potential garden lands the position is very bad. Cases Nos. 9 and 10 are admittedly selected as extreme cases, but they illustrate what is common in large areas all over Gujarat. Such conditions inevitably reduce production, and in extreme cases put the land out of cultivation, as is shown. They put a stop to all permanent improvements, and produce an uneconomic situation which reacts most unfavourably on the cultivators.

The Deccan is divided into West Deccan and East Deccan. In the West Deccan the pressure of the

population on the cultivable land is usually great, and sub-division and fragmentation are marked, as shown in cases Nos. 11 to 14. In the East Deccan the pressure is usually much less as is shown in cases Nos. 15 to 71.

To sum up the evils of excessive sub-division and fragmentation, they may be stated as follows:—

- (a) They impede current cultivation and waste time.
- (b) They prevent permanent improvements.
- (c) They prevent a man from living on his farm.
- (d) They prevent any orderly organisation of labor or capital.
- (e) They frequently result in second crops not being grown.
- (f) They sometimes send land out of cultivation altogether.
- (g) They cause enmity amongst neighbors leading to litigation and permanent feuds.
- (h) They produce a generally uneconomic situation.

I quite realise that when population presses heavily on the cultivable land, holdings must be small, and that in some cases there is a good cause for a strictly limited amount of fragmentation, as in the Konkan between the rice and the *warkas* lands, in parts of Gujarat between rice, garden and dry lands, and in parts of the Deccan between the dry and *patasthal* lands. But I would submit that throughout the Konkan and over a large part of the Deccan and Gujarat sub-division and fragmentation have gone much farther than is reasonable, and are exercising a very prejudicial influence on the cultivation and development of the country. It is true that in parts of the Deccan and Gujarat this tendency is not yet far developed, but it

will become so if it is not checked; and it is much easier to check it before the evil has gone very far. The fact even that there are a large number of holdings too small to support a family need not of itself be a cause for alarm. The holders of such small holdings must necessarily work part of their time for others as laborers, and in the case of garden lands with irrigation facilities their holdings may be more in the nature of "allotments"; but when it is found that the great majority of holdings are of these small dimensions and further that they are fragmented in a way for which there is no economic justification, and that the great bulk of the land is thus put outside the possibility of effective cultivation or economical organisation, then, I would submit, the necessity arises for some remedial measures. This state of affairs already exists in a large part of the Presidency, and will come into existence in the remainder unless timely action is taken.

In Appendix II, I have attempted to show how in other countries similar causes have produced similar results, and the remedial action which has been adopted to meet the difficulty. I have not by me sufficient materials to make this paper complete, but have quoted my authorities for the statements made. I think that a perusal of Appendix II will make it clear that in other countries—

- (1) Excessive sub-division and fragmentation of holdings have directly resulted from laws of inheritance which on the death of the father distribute the land amongst the children.
- (2) Though in several countries the peasants have made strenuous efforts (amounting in some cases to an agreement to ignore the law of the land) to preserve the holdings

intact, they have failed to accomplish their object adequately.

- (3) Remedial legislation has been found necessary and has been adopted in a large number of the most progressive countries to remedy the evils caused by their law of inheritance.
- (4) In some countries where the law of inheritance does not favor sub-division the new legislation has aimed at the partition of large estates, while in other countries where the law of inheritance does favor sub-division the new legislation has aimed at the enlargement and consolidation of the existing small holdings. At first sight it may seem that this involves the acceptance of two opposing principles, but in reality this is not so, since the object in either case is to create and to maintain reasonably sized and reasonably situated economic holdings for peasant-farmers.
- (5) To secure this end the legislation has been drastic, involving the principles of—
 - (a) compulsory expropriation,
 - (b) the compulsion of all concerned to accept restripment when a certain fraction of the land-holders desire it, and in extreme cases even without the desire of a certain fraction,
 - (c) the subsequent indivisibility of the reconstituted holding,
 - (d) the exemption of the reconstituted holding from seizure for debt, involving the condition that loans cannot be raised on the security of the holding,
 - (e) not allowing the reconstituted holding to be combined with other holdings.

- (6) In all cases the extreme benefit that has resulted from such remedial measures is clearly recognized. In some cases the value of the land is said to have trebled, in other cases to have increased over 60 per cent, and there is a general consensus of opinion as to the increased yields of crops obtained by reason of these measures and as to the reduction in the cost of production.

If, therefore, the facts and the arguments, as detailed above, are accepted, it only remains to consider what action can be taken in this Presidency to remedy the sub-division and fragmentation of holdings which exists in a degree beyond that of any other country mentioned, with the possible exception of Japan. There can be no doubt that here as elsewhere the trouble is caused by the law of inheritance; and as the Hindu law of inheritance is more thorough in its dividing tendency than the law of inheritance; in any other country, so its results on the size and distribution of the holdings are more marked. In former times when there was no pressure of population on the soil, and when waste land was available for all who wanted it, no serious inconvenience was experienced in India or elsewhere from such law of inheritance; but, with the increased pressure of the population on the cultivable land, the situation is quite different, and the present state of the holdings constitutes a serious and increasingly serious handicap. No industry could prosper under such conditions, and it is safe to say that if the mill industry in Bombay City were fettered in this way it could not exist. Fortunately for the mill industry it rests on a joint-stock basis, and the capital and management of a mill remain intact, however much the component units of the

capital may become divided. In peasant agriculture the joint-stock principle can afford no help, and any expectation that individual or co-operative effort can effectively succeed in neutralising the effect produced from generation to generation by the law of the land is, I fear, doomed to inevitable disappointment.

It would be easy to propose drastic measures for the reconstitution of holdings, conceived on the lines that have been found successful in other countries, involving some measure of expropriation and compulsory restripment; but it is certain that such a proposal would be considered as an outrage to Hindu sentiment and would meet with strong opposition. The landholders, large and small, are, however, fully aware of the extreme inconvenience caused to them by the existing conditions, and I believe that they would gladly welcome any measure which offered a remedy without introducing the element of compulsion. At present if a man owns five acres and has five sons the law compels him to give one acre to each son, though he may be well aware that such an arrangement is quite unsuitable and uneconomic. In other words the law makes a will for a man which, if he made it for himself, would cause him to be considered, and rightly considered, a fool. My proposal is that the landholder shall be enabled to escape from this tyranny if he and all concerned wish it. I have accordingly prepared a bill¹ to enable holders of land to constitute economic holdings, and I append as Appendix III a brief statement of "objects and reasons". It may be argued that comparatively few landholders would be in a position or would care to avail themselves of this provision. This may be so at first, but in the case of holders of self-acquired land over which

¹ Owing to reasons of space it has proved impossible to print the draft bill with this paper. It appeared in the official print circulated prior to the meeting.—[Ed.]

they have full power of disposition, I believe that a fair amount of persons would be glad to avail themselves of the opportunity of creating permanent economic holdings for their descendents ; and it must be remembered that in the course of a century much of the land falls at one time or another into the category of self-acquired land. So also in the case of a man with two or three sons and with other land or other property besides the land which he wishes to create into an economic holding, all the parties concerned might well be glad to come to an arrangement of this nature.

No element of compulsion is involved in the proposed bill, which is of a purely permissive nature. It may be argued that, in the anxiety to introduce no compulsion, the bill is so weak that it would be inoperative. In that case at least no harm would have been done. I do not think that any striking change would immediately result from the passing of this bill, but I think that it goes as far as public opinion in its present state is prepared for. I believe that it would be operative and beneficial from the beginning, that it would help to mould public opinion in the direction of recognising the fundamental necessities of agriculture, and that in the course of a century it would produce marked results.

I have talked to a large number of landholders and educated Hindus on the subject, and I believe that a permissive act of this nature would be generally welcomed, though I fear that even this limited measure of relief would be opposed by a certain number of rigid Hindu lawyers. I would point out, however, that modifications of Hindu law are from time to time effected on the motion of Hindus, and that this bill merely applies to land the principle of indivisibility which for physical reasons must be applied to objects such as a horse or a machine. It is physically possible

to divide up a guntha of agricultural land into a number of smaller plots, though economically it is obviously foolish to do so; and it is still more foolish for the law to compel a man to do so. In the case of town houses also I believe that it is common in Hindu families for one brother to take the family house entire, without any attempt at division.

In conclusion, I would venture to express the opinion that the creation of more economic holdings is a fundamental necessity for agriculture in the Bombay Presidency, and by means of the proposed bill a start can be made in the economic reconquest of the land.

APPENDIX I

EXAMPLES OF THE EXTENT OF SUB-DIVISION AND FRAGMENTATION OF HOLDINGS IN THE BOMBAY PRESIDENCY

The extent of sub-division and fragmentation of holdings in the Bombay Presidency differs considerably in the different tracts. It is greatest in the rice lands of the Konkan and Ghat strip of the Deccan, where the conditions of rice cultivation and the value of the rice crop tend towards the existence of small holdings, and where the pressure of the population on the area of rice land, and in particular on the fertile coast strip, accentuates the evils of excessive sub-division and fragmentation.

A.—KONKAN AND GHAT STRIP OF THE DECCAN

I propose to state typical cases showing from different points of view the extent to which sub-division and fragmentation have proceeded in the districts of Kanara, Ratnagiri, Kolaba and Thana.

Case No. I. Survey Nos. 1 to 40 of Uppinapatan, taluka Kumta, district Kanara

This area of 52 acres was selected simply because it was a nice compact block of land with excellent natural facilities, which might have sufficed for 3 or 4 rich holdings, or 6 or 8 fair holdings. In point of fact it is divided up into 139 separate plots held by about 50 landholders. I submit a map of the land (See p. 194) and a tabular statement showing areas,

number of plots, number of *mulgeni* (permanent) leases, number of simple leases and number of mortgages.

Survey No.	Area	Assessment	Number of Kabjedars, i. e., landholders	Number of mulgeni leases	Number of simple leases	Number of mortgages
	A. g.	Rs. a. p.				
1 (Part)	2 20	10 0 0	3	...	...	1
3	0 34	8 0 0	3	...	...	1
4	0 19	3 0 0	1	...	...	...
5	1 38	9 0 0	1	...	...	...
6	0 31	4 0 0	3	...	...	...
7	0 26	3 4 0	3	...	1	1
8	0 34	5 0 0	3	1	2	...
9	1 29	5 8 0	3	...	3	...
10	1 1	7 8 0	2	...	2	1
11	2 23	14 0 0	2	...	...	2
12	1 14	8 0 0	4	...	4	2
13	0 14	0 2 0	1	...	...	...
14	0 9	1 0 0	1	...	1	1
15	1 14	7 0 0	2	...	2	...
16	1 1	4 0 0	4	1	1	2
17	0 35	4 0 0	3	1	...	1
18	0 28	1 5 0	4	...	...	1
19	1 9	2 8 0	7	...	1	...
20	0 39	3 0 0	1	...	...	1
21	1 5	2 7 0	8	...	2	...
22	1 6	4 12 0	7	...	3	1
23	1 1	6 0 0	3	...	2	1
24	0 25	4 5 0	7	...	3	1
25	1 6	5 8 0	3	...	2	1
26	1 3	4 12 0	7	...	7	1
27	1 4	5 0 0	4	...	4	1
28	1 5	5 1 0	7	...	2	2
29	1 9	5 8 0	4	1	3	1
30	1 7	4 0 0	1	...	...	...
31	0 19	3 0 0	1	...	...	...
32	1 23	7 0 0	1	...	1	...
33	1 11	6 10 0	9	...	...	2
34	1 4	5 12 0	3	1	1	1
35	0 38	5 0 0	1	...	1	...
36	1 17	7 0 0	2	2	...	...
37	0 11	1 8 0	2	1	...	...
38	1 1	5 0 0	2	1	...	1
39	1 5	5 8 0	9	...	6	1
40	1 2	6 0 0	2	...	2	...
Total...	52 1	*199 14 0	139	9	56	28

*Current rents are about 10 times the assessment.

The number of *Kabjedars* (landholders) entered against each survey number represents the number of separate plots into which the land is divided. The same men, however, own land in several survey numbers, so that the actual number of owners is less, being about 50. In another way, however, the fragmentation is even greater than the figures in-

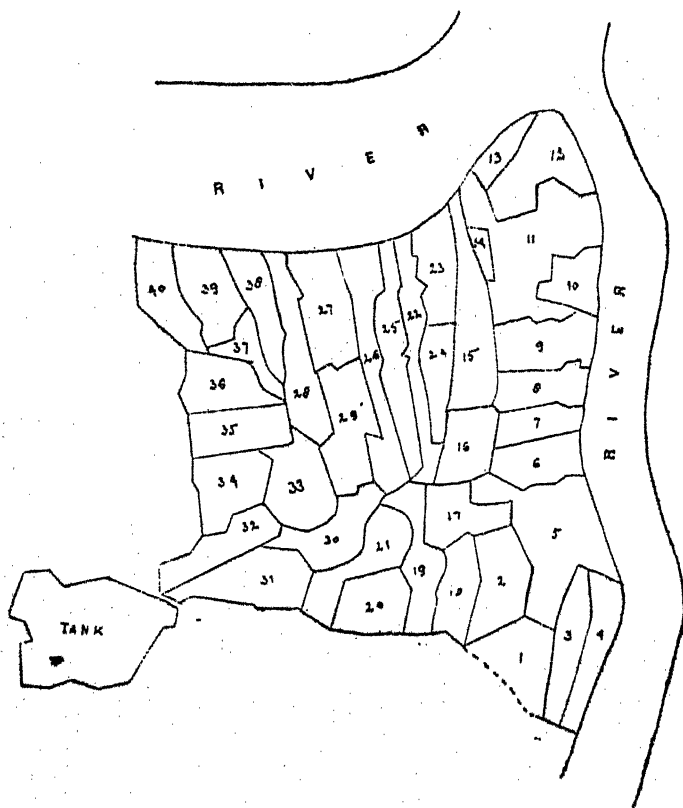


FIG. 1. MAP OF UPPINA PATAN. CASE NO. 1.

dicate, *e.g.*, in Survey No. 1 the number of shares shown is 3; but in reality the field is divided into 18 plots, each sharer cultivating 6 plots annually, and moving on to another 6 plots the year after, and so on.

The following details regarding two of the survey numbers give a good idea of the fragmentation:—

Survey No. 7, garden land growing cocoanuts:—

Sub-divisions—	Gunthas
1. Ganpu Dodda ...	1½
2. Ganpu Bira ...	1
3. Ganpu Dodda ...	2½
4. Ganpu Bira ...	7
5. Mahabalu Mari ...	1½
6. Rama Anapa Naik ...	2½
7. Mahabalu Mari ...	1
8. Shridhar Manjanath Shanbog	8½
Total ...	26

Survey No. 33, rice land:—

Sub-divisions—	Gunthas
1. Mahalaxmi kom Sadashiv Naik	9½
2. Tulsi kom Shiv ...	4½
3. Timapa Damgauda ...	4½
4. Mahabalu Mari ...	6
5. Ganpu Dodda ...	8½
6. Ganpu Bira ...	13
7. Ramchander Sababhatta ...	2½
8. Dasu Vaikanth Pai and Wasudeo Krishna Pai	7½
9. Kuppa Maraganda ...	1
Total	1 acre 11 gunthas

A cultivator can sometimes lease land contiguous to his own holding, and in this way some temporary unification of the land is effected, though it does not go very far. The following gives a typical case of the area actually cultivated by one of the most substantial cultivators in the village, viz.:—

Ganpu Bira cultivated 12 acres of rice land, of which he owns 3 acres and hires 9 acres: the 12 acres which he cultivates is divided into 21 different plots.

Physical condition of the land

The whole of the land is rice land, except that on the edge of the river a few fields contain a certain number of cocoanut trees which are badly looked after and not irrigated. There is a tank in the jungle close by which, it is stated, formerly provided sufficient irrigation water to grow a second crop of *waingan* rice (i.e., hot weather rice) or sugarcane on practically the whole area, to which it was conducted by a channel round the upper contour of the field. The tank is now much silted up and the channel out of order. Rice is

grown in the monsoon, and afterwards there is enough water for about 4 acres of *waingan* rice and 2 acres of sugarcane. In the absence of a water channel this water runs down to a low part of the field and is lifted once and in some cases twice on to the sugarcane land.

It was obvious that the following improvements were needed:—

- (1) The tank required clearing of silt or to have the bund raised.
- (2) The water channel needed repair so that the water could be taken to any part of the field by gravity.
- (3) Some embankments against flood water from the river were needed.
- (4) The land needed proper fencing against wild animals from the adjoining jungle, which do much damage. Having the river on two sides, it needed fencing on only two sides.
- (5) The whole needed to be properly laid off into level plots of reasonable size, so as to admit of easy cultivation, instead of being divided into very small and irregular shaped plots, with *bands* in between, which occupied an excessive amount of space.

On account of the excessive sub-division and fragmentation of the land it is hopeless to contemplate the possibility of any such improvements.

Case No. 2—Survey Nos. 2, 4, 5, 6, 7, 8, 13 and 26 of Shirgaon, taluka Ratnagiri, district Ratnagiri.

Case No. 1 refers to an area which is held almost entirely by cultivators. In some parts of the Konkan the bulk of the rice land is in the hands of non-cultivating landlords. Naturally in such cases the holdings tend to be larger, and the fragmentation less, but this case which occurs at Shirgaon, where the Government Farm is situated, gives an instructive example of the way in which such holdings are becoming subdivided and fragmented. The area consists of a block of good rice land. It will be noticed that one holder has a nice block of 64 acres of rice land; but most of the holdings are badly split up, as can be seen from the map and statement. This case is intended to indicate merely the extent of fragmentation of this class of holdings.

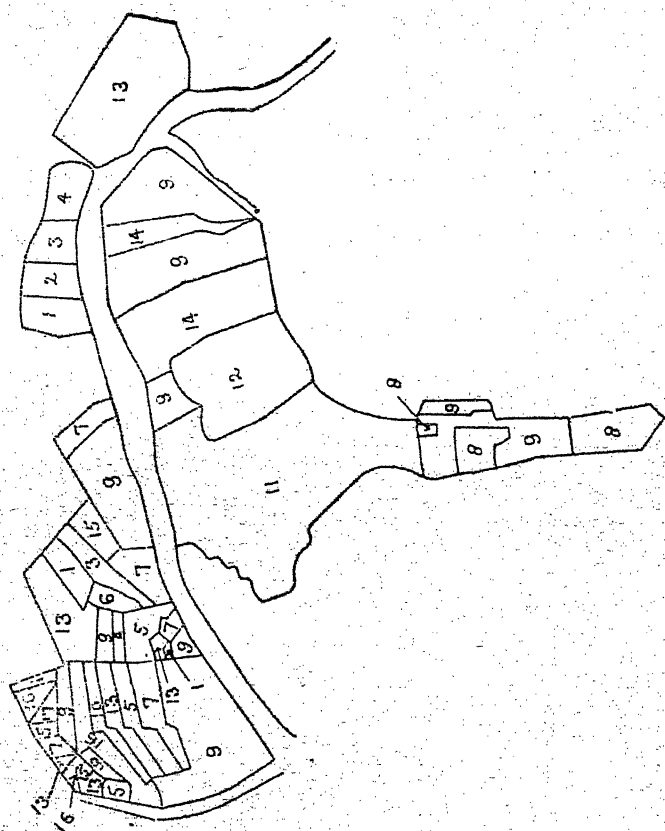


FIG. 2. MAP OF SHRIGAON CASE. No. 2.

BLOCK OF RICE LAND CONSISTING OF 8 SURVEY NUMBERS IN
SHIRGAON, RATNAGIRI TALUKA, AND DIVIDED INTO
17 SEPARATE HOLDINGS

Holdings	Area of holding		Number of separate plots
	Acres	Gunthas	
1. Narayan Balshastri Agashye ...	0	34½	3
2. Sadashiv Balshastri Agashye ...	0	13¾	1
3. Kashinath Balshastri Agashye ...	0	33	2
4. Raghunath Balshastri Agashye...	0	20	2
5. Purshotam Ramchandra Apte ...	1	14	5
6. Vasudeo Keshav Apte ...	0	7½	1
7. Raoji Chintaman Bhat ...	1	30	5
8. Keshav Sitaram Damale ...	1	10¾	4
9. Vishnu Kashinath Damale ...	6	33½	9
10. Sona Govind Daphale ...	0	14	1
11. Laxman Raghunath Joshi ...	6	17½	1
12. Shrikrishna Nilknath Joshi ...	1	32½	1
13. Karmarkar brothers and Pandu Gharoji Shaitye ...	3	29¾	7
14. Harbhat Sakhanabhat Marathe...	2	20½	2
15. Narayan Gharoji Shaitye ...	0	13¾	1
16. Pandu Gharoji Shaitye ...	0	35¾	3
17. Tukaram Ramji Shaitye ...	0	7	1
Total ...	30	17½	49

Case. No. 3

The attached map merely indicates the extent of the fragmentation of three large holdings in Kane village, taluka Pen, district Kolaba. Holdings Nos. 1 and 3 belong to agriculturists, holding No. 2 to a non-agriculturist.

STATEMENT SHOWING DIFFERENT HOLDINGS HELD BY THREE
DIFFERENT KABJEDARS IN THE VILLAGE OF KANE,
TALUKA PEN

No.	Name of Kabjedar	Reference to survey number on the map in which his holding exists
1	Ganoo Chang Patil ...	3, 5, 6, 29, 31, 66, 67, 74, 86, 102, 105, 115 and 88.
2	Mulchand Gernaji Shet ...	8, 9, 13, 14, 15, 16, 21, 23, 24, 27, 29, 32, 34, 35, 36 38, 39, 41, 42, 43, 50, 55, 56, 59, 61, 62, 63, 64, 65, 67, 68, 69, 70, 72, 78, 81, 82, 83, 84, 85, 91, 92, 96, 97, 100, 102, 103, 106, 109, 110, 111 and 113.
3	Pavsya Kal Patil ...	2, 17, 32, 61, 62, 63, 67, 85, 86, 102 and 107.

Case No. 4—Nehuli village, taluka Alibag, district Kolaba

The following statement merely indicates the extent of sub-division of holdings in a typical village, showing the holdings of agriculturists and non-agriculturists separately. The village of Nehuli, taluka Alibag, district Kolaba, was selected because practically all the occupied land in the village is rice land, less than 4 acres out of 125 acres being *warkas* (i.e., dry crop) land. It will be seen that the average size of a holding held by an agriculturist is only 2½ acres, and by a non-agriculturist 3 acres. Amongst 24 agricultural holdings one is large, 3 or 4 fair in size, and the rest very small, 9 being less than one acre. Amongst 19 holdings of non-agriculturists one is large, 5 fair in size, and the rest very small, 8 being less than one acre.

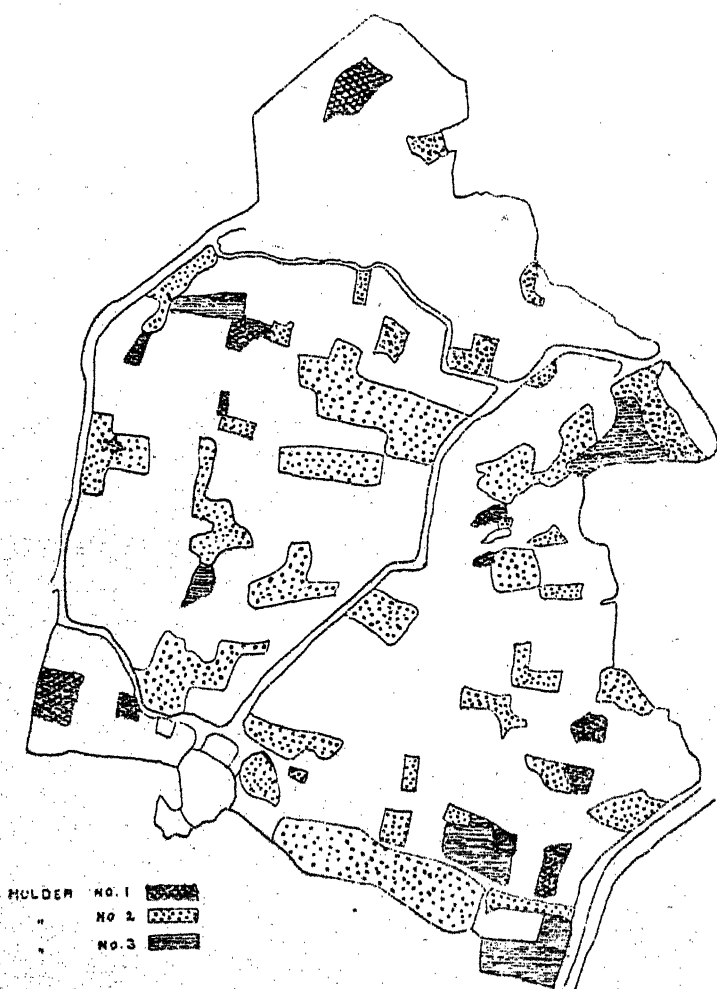


FIG. 3. MAP OF KANE VILLAGE. CASE No. 3.

AGRICULTURISTS' HOLDINGS

NON-AGRICULTURIST'S HOLDINGS

Holding No.	Acres	Gunthas.	Holding No.	Acres	Gunthas
1	3	33	2	9	6
7	6	7	3	4	27½
8	4	37	4	7	20½
9	2	18	5	2	33
10	3	28	6	0	34½
11	2	4	14	2	28
12	1	34	17	0	27
13	0	2½	18	1	6
15	18	17	19	0	39
16	2	5	20	1	2
23	2	22	21	21	38
24	0	17½	22	6	0
25	0	4	23	0	38
26	1	10½	29	1	15
27	0	13	35	0	30
30	0	37	36	0	29½
31	1	25	40	4	16
32	0	2	41	0	35½
33	0	25½	42	0	36
34	0	5½			
37	0	12			
38	7	23½			
39	1	11			
43	1	38			
<hr/>			<hr/>		
Total 24	56	32	Total 19	67	31½
holdings			holdings		
Average holding about 2½ acres			Average holding about 3½ acres		

Case No. 5—Badlapur village, taluka Kalyan, district Thana

ASSORTED HOLDINGS SHOWING EXTENT OF SUB-DIVISION
AND FRAGMENTATION

Name of holder	Area held	Assessment	Number of separate plots
	Acres Gunthas	Rs. a. p.	
Chintaman Hari (Sowkar) ...	48 6	129 0 0	53
Vishnu Raghunath Vaidya (landlord) ...	67 0	137 0 0	38
Raoji Gopal Patil ...	1 9	1 4 0	6
Raoji Raghu Kulkarni ...	6 30	33 0 0	8
Rama Undriya Patil ...	24 0	22 0 0	17

The land referred to in the above statement is mostly rice land; but even the *warkas* (sloping dry-crop land) is much split up; e.g., Survey No. 179 (area 25 acres—assessment Rs. 13) is split up into 22 sub-divisions. It grows only grass.

Case No. 6—Karla village, taluka Mawal, district Poona,

(Typical of rice tract immediately above the Ghats)

ASSORTED HOLDINGS SHOWING EXTENT OF SUB-DIVISION
AND FRAGMENTATION

Name of holder	Area held	Assessment	Number of separate plots
	Acres Gunthas	Rs. a. p.	
Bhika Tikaji Marwadi (Sowkar).	60 0	117 0 0	27
Genu Sakhada (Cultivator)	2 27	4 11 0	8
Chima Vithu (Cultivator)	2 31	12 0 0	5
Chima Jogoji (Cultivator)	16 6	27 6 0	7
Laxman Sakbaram (Cultivator).	2 35	5 5 0	6

Most of the land shown in the above statement is rice land, but some bits of dry crop land are included.

B.—GUJARAT

Case No. 7—Althan village, taluka Chorasi, district Surat

Area—Acres 694. Assessment—Rs. 4,384.—Landholders 99, of whom 54 are cultivators and 45 are non-cultivators, which gives an average of 7 acres per holding, or ignoring non-cultivators, 13 acres per holding.

The largest non-cultivators' holding amounts to 86 acres in 23 separate plots.

The largest cultivator's holdings are—

- (1) One of 41 acres, in 9 plots, the largest plot being 23 acres.
- (2) One of 35 acres, in 8 plots, the largest plot being 17 acres.
- (3) One of 26 acres, in 8 plots, the largest two of which are 6 and 5 acres respectively.

There are a good many small holdings of from 2 to 7 acres, but most of the holders of these manage to hire other land. In a few cases fragmentation has reduced the size of plots to $\frac{1}{2}$ acre, but such cases are rare.

The village has heavy black soil and is a dry crop village growing cotton and jowari. A good cultivator aims at cultivating from 15 to 20 acres with one pair of bullocks, and a fair proportion of the cultivators secure this amount of land; so it will be recognised that from the economic point of view sub-division of land has not yet gone to any disastrous lengths. As regards fragmentation it will be noticed that it is considerable, and is certainly prejudicial, but the land is fairly level dry crop land, where there is no question of irrigation or garden cultivation, and comparatively little opening for permanent improvement. In such a case provided that the individual plots amount to 3 or 4 acres, and are not too small to admit of convenient tillage operations, the loss caused by fragmentation is relatively small. In the main this is the case here.

Case No. 8—Village Mangob, taluka Chorasi, district. Surat

Area—153 acres. Assessment—Rs. 3,949. 74 landholders of whom 14 are non-cultivators and 60 cultivators.

Largest non-cultivator's holding, 19 acres in one plot with a well. Largest cultivator's holding, 14 acres of dry crop land in one plot.

The soil in this village is lighter than in case No. 7 and there are 125 acres of garden land growing vegetables, ginger, chillies, etc. The rest is dry crop land, growing cotton and jowari. It will be seen that in this village the sub-division and fragmentation of the land is greater than in case No. 7. This is connected with the existence of garden land, and it is in such land that it is most pronounced, *e.g.* :—

	Acres		Gunthas		
Survey No. 69—	Area	7	4		divided into 4 plots.
Survey No. 24—	„	9	5		divided into 7 plots.

The people say that as the garden land is sub-divided the rights in the old wells are also sub-divided, and the holders of rights in a single well repair the well jointly. This works fairly well up to a certain point, but they say that the sub-division of the garden land certainly checks the making of new wells, and very few are now being made, though there is plenty of suitable land where they might be made with advantage if the land was not so sub-divided.

Case No. 9

In the garden villages of the Bulsar and Jalalpur Talukas of the Surat District, where the pressure of the population on the land is greater, the sub-division and fragmentation are much more marked. The following statement gives details for some villages where it is very acute:—

Name of Village	Cultivated area and assessment	Cultivated area classified			Number of land holders			Average holding per	
		Garden	Dry crop	Rice	Non-cultiva- tors	Cultivators	Total	Holder	Cultivator
Bulsar Taluka									
Pardi Sandhpur	Acres 295 Rs. 3,146	246	47	2	33	100	133	Acers 2'14	Acres 2'85
Mograwadi ...	Acres 538 Rs. 3,335	173	333	32	38	122	150	3'58	4'41
Bhagda Yada ...	Acres 1,523 Rs. 5,546	101	1,166	236	122	321	443	3'43	4'74
Jalalpur Taluka									
Amalsad ...	Acres 1,192 Rs. 10,844	666	612	114	82	253	335	3'56	4'71
Kachholi ...	Acres 1,154 Rs. 10,962	406	695	53	109	210	319	3'61	5'49
Abrama ...	Acres 3,043 Rs. 14,949	...	2,520	523	91	718	809	3'78	4'24
Eru ...	Acres 1,398 Rs. 5,775	...	1,117	281	6	387	393	3'53	3'61

The foregoing table shows the extent of the sub-division. The extent of the fragmentation may be gathered from the following examples of large and small cultivators:—

Name	Village	Area cultivated	Number of separate plots
		Acres	
Vasanji Sarbhai ...	Pardi Sandhpur	18	14
Haribhai Gulab ...	Do. ...	13	18
Naranji Bhimbhai ...	Mograwadi ...	22	20
Ganda Ratanji ...	Pardi Sandhpur	3	4
Khandubhai Mohanbhai...	Do. ...	5	7

In the same group of villages the following examples may be given of individual fields where the fragmentation is very excessive:—

1. Village Abrama.

Survey No. 218.

Area 1 acre 26 gunthas. Assessment Rs. 28. (Bagayat.)

Separate Plots	Area	Crop grown in 1915
	Acres Gunthas	
1	0 9	Sugarcane
2	0 9	Sugarcane
3	0 10	Dry rice
4	0 32	Dry rice
5	0 3	Wal
6	0 1	Guvar
7	0 1	Uncultivated
8	0 1	Dry rice

2. Village Abrama.

Survey No. 370.

area 26 gunthas. Assessment Rs. 13-8-0. (Rice land)

Separate Plots	Area		Crop grown in 1915
	Acres	Gunthas	
1	0	2	Uncultivated
2	0	1	
3	0	2	
4	0	2	
5	0	1	
6	0	1	Rice
7	0	2	
8	0	6	
9	0	9	

3. Village Pardi Sandhpur—Survey No. 28, area 3 acres 25 gunthas, assessment Rs. 44—is divided into 21 separate plots, and the whole was uncultivated in 1915.

From the above three cases it will be noticed that when the fragments become very small they tend to go out of cultivation.

Case No. 10

In some parts of Northern Gujarat also, and particularly in the Chharotar sub-division, fragmentation of holdings has reached great lengths. Three statements are here given showing for three villages in the Kaira District the extent of the sub-division and fragmentation of particular holdings and of particular fields.

(1) SHOWING EXTENT OF SUB-DIVISION

Serial No.	Name of the village	Occupied area	Assessment	Number of holders.		Average holding per cultivator
				Agriculturists	Non-Agriculturists	
		A. g.	Rs. a. p.			Acres.
1	Saloon ...	2,418 7	14,018 0 0	438	109	5.52
2	Uttarsanda	2,231 19	14,095 2 0	484	86	4.60
3	Dabhan ...	1,997 18	14,251 1 0	450	92	4.43

(2) TYPICAL CASES SHOWING FRAGMENTATION OF PARTICULAR HOLDINGS

Name of villages	Name of Holder	Agriculturists or non-agriculturists	Area of the holding	Assessment of the holding	Number of separate plots
Saloon	<i>Big holders</i>		A. g.	Rs. a. p.	
1	Patel Kishorbhai Jijibhai	Agriculturist	62 13	328 0 0	27
2	„ Mathurbhai Jeshangbhai	„ ...	65 34	412 0 0	23
3	„ Marghabhai Ichhabhai	„ ...	36 16	256 0 0	16
4	„ Chhotalal Mansukhbhai	Non-agriculturist ...	45 29	275 0 0	14
5	Tribhovan Chhaganlal...	„ ...	13 30	61 0 0	7
6	Hiralal Shivalal ...	„ ...	11 39	62 0 0	9
	<i>Small holders.</i>				
1	Patel Chhagan Revandas	Agriculturist	7 9	53 4 0	5
2	„ Vaghaji Somabhai...	„ ...	5 26	25 1 0	5
3	Desai Motibhai Shankerbhai ...	„ ...	13 16	70 0 0	6
4	Laxmishanker Prabhu-shanker ...	Non-agriculturist ...	3 14	18 15 0	2
5	Laxminarayan Parsadrai	„ ...	11 12	71 0 0	3
6	Shah Valavdas Gangadas	„ ...	8 32	47 12 0	3
Uttar-sanda.	<i>Big holders</i>				
1	Patel Ishvarbhai Bhulabhai ...	Agriculturist	28 4	186 6 0	15
2	„ Mathurbhai Muljibhai	„ ...	12 10	69 9 0	8
3	„ Lalubhai Narerbhai...	„ ...	12 7	79 14 0	3
4	Morlidhar Maharaj ...	Non-agriculturist ...	70 24	378 0 0	18
5	Jamietram Shivalal ...	„ ...	12 7	73 10 0	4
6	Narandas Motiram Sadhu	„ ...	12 20	74 9 0	9
	<i>Small holders</i>				
1	Patel Kishorbhai Bavaji	Agriculturist	5 26	35 8 0	5
2	„ Babarbhai Zaverbhai	„ ...	5 34	35 11 0	5
3	„ Shankerbhai Manorbhai ...	„ ...	3 39	22 0 0	3
4	Gor Jagannath Shanker...	Non-agriculturist ...	4 34	29 9 0	4
5	Mansukhlal Haribhai ...	„ ...	5 5	30 0 0	2
6	Motilal Nagar ...	„ ...	5 24	30 0 0	8

Name of village.	Name of holder	Agriculturists or non-agriculturists	Area of the holding.	Assessment of the holding	Number of separate plots
Dabhan	<i>Big holders</i>		A. g.	Rs. a. p.	
1	Patel Kishubhai Becharbhai ...	Agriculturists	24 38	173 12 6	13
2	„ Gokalbhai Kuberbhai ...	„ ...	23 10	172 6 0 0	15
3	„ Naranbhai Dadabhai ...	„ ...	14 36	113 9	13
4	Acharya Shripatprasad Biharilal	Non-agriculturist.	59 18	426 6 6	62
5	Pandya Dolatram Kirparam ...	„ ...	21 17	145 4 0	12
6	Pandya Dhirajlal Ranchhod ...	„ ...	8 24	58 9 0	7
	<i>Small holders</i>				
1	Patel Chakabhai ...	Agriculturist	7 26	56 10 0	5
2	Bai Nathi (Patel Mathurabhai Girdhar's daughter).	„ ...	8 0	54 11 0	8
3	Patel Motibhai Muljibhai ...	„ ...	7 16½	52 2 6	13
4	Jamietram Pranshanker Bhatt	Non-agriculturist.	7 23	56 0 0	4
5	Narmadashanker Chhaganlal Bhatt	„ ...	5 34	41 5 0	4
6	Mansukhram Vidyaram ...	„ ...	5 18	45 15 0	6

C.—DECCAN

The problem differs considerably between the West Deccan and the East Deccan.

In parts of the West Deccan where the rainfall is fairly regular and other conditions favourable, the pressure of the population on the cultivable land is often considerable. In the East Deccan it is usually far less.

Case No. 11

The tables given below show the extent of the sub-division in five villages situated in the Koregaon Taluka, Satara District, under markedly favourable West Deccan conditions. They are distinctly non-irrigated villages, though a few wells exist. Most of their crops are kharif, but they have some rabi.

Name of village	Average assessment per acre	Average size of holding held by agriculturists	Area held by non-cultivators and leased out to cultivators
	Rs.	Acres	Acres
1. Tadvala ...	3.03	5.96	22
2. Jalgaon ...	1.87	5.19	741
3. Khed ...	1.70	6.09	541
4. Tripoti ...	1.23	8.32	282
5. Apsinge ...	.98	14.26	38

The table on the next page shows for the same five villages further details regarding the size of the holdings.

SIZE OF LAND HOLDINGS

211

CULTIVATORS' HOLDINGS

Area of holdings	Tadwala			Jalgaon			Khed			Tripoli			Apsinge		
	No.	Area	Aver- age assess- ment per acre	No.	Area	Aver- age assess- ment per acre	No.	Area	Aver- age assess- ment per acre	No.	Area	Aver- age assess- ment per acre	No.	Area	Aver- age assess- ment per acre
1 to 5 acres
5 to 15 acres
15 to 25 acres
25 to 100 acres
100 to 500 acres
Total	322	1,320	...	347	1,803	...	340	2,074	...	116	967	...	222	3,172	...

It will be noticed that in villages where the average assessment per acre varies from Rs. 3 to Re. 1 the size of the agriculturists' holdings varies from 6 acres to 14 acres. It is only in Apsinge, where a large part of the land is of poor quality, that the average holding exceeds 8 acres. No doubt the land held by non-agriculturists is leased out to some of the smaller holders and gives them some additional area to cultivate; but this relief does not amount to anything very material. The great bulk of the holdings have an area of less than 15 acres each. The best land is for the most part divided up into very small holdings.

Case No. 12

The village of Lhasurna, taluka Koregaon, district Satara, is close to the five villages mentioned in case No. 11. The average size of the holding is 5 acres, and the average assessment per acre for the village is Rs. 2'63. There are 100 acres under patasthal irrigation.

The following instances give an idea of the fragmentation of holdings:—

Survey No. 67 (Patasthal), area 38 gunthas, is divided amongst 6 holders. Average size of each $6\frac{2}{3}$ gunthas.

Survey No. 70 (Patasthal), area 23 gunthas, is divided amongst 7 holders. Average size of plot $3\frac{1}{4}$ gunthas.

Survey No. 71 (Patasthal), area 36 gunthas, is divided amongst 3 holders. Average size of plot 12 gunthas.

Survey No. 102, Pot No. 13 (dry land), area 22 gunthas, is divided into 10 plots belonging to 10 different men. Average size of plot $2\frac{1}{5}$ gunthas. As a result of this extreme fragmentation it has been uncultivated for years past.

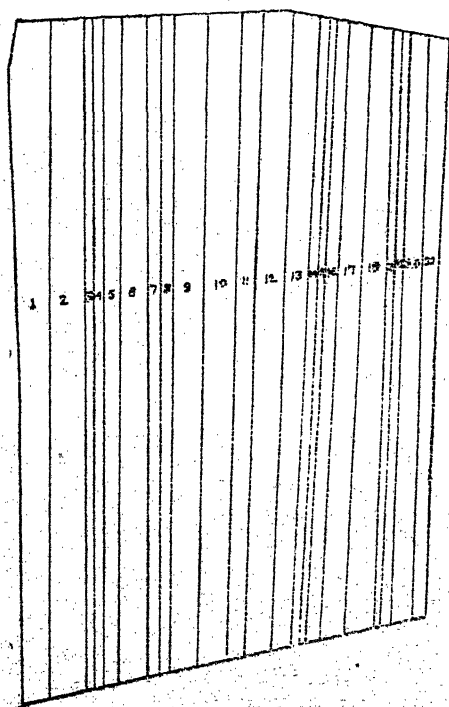
Case No. 13

The village of Pimpla Soudagar, 9 miles from Poona, was selected by Dr. Mann for conducting an economic survey, and he recorded the following facts:—

Occupied area	... 951 acres
Assessment	... Rs. 1,660
Number of holdings	... 156
Average size of holding	... 7 acres
Number of separate plots owned	... 711
Average number of plots per holding	... $4\frac{1}{2}$
Number of separate plots separately cultivated	... 729

Case No. 14

The maps and explanatory statements given on this and the following page of two survey numbers of Mundhwa village, near Poona, both under canal irrigation, show not only great fragmentation of the land, but indicate also the very awkward and unsuitable shapes into which the plots are divided. Some of these narrow strips running the whole length of the field are only 22 feet wide. Such a division makes effective tillage and irrigation impossible.



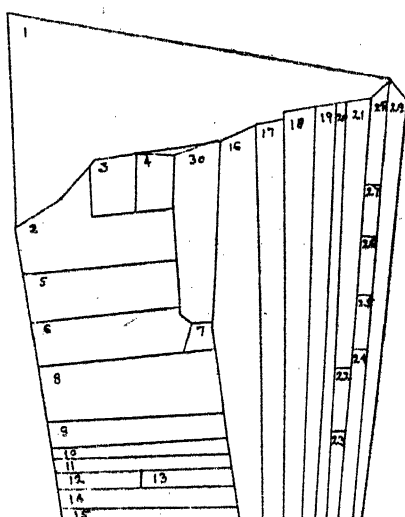
SURVEY No. 92

Part of Pot No.	Area.		Assess- ment.		
	A.	G.	R.	A.	P.
1	3	21	4	10	0
2	3	30	4	15	0
3	0	39	1	4	0
4	1	0	1	5	0
5	1	24	2	2	0
6	2	23	3	7	0
7	1	8	1	9	0
8	1	12	1	10	0
9	2	20	3	7	0
10	3	27	4	10	0
11	1	34	2	8	0
12	2	32	3	9	0
13	2	20	3	5	0
14	0	30	0	14	0
15	0	31	0	14	0
16	1	1	1	2	0
17	1	33	2	2	0
18	2	17	2	12	0
19	0	39	1	2	0
20	1	35	2	3	0
21	1	8	1	6	0
22	0	38	1	2	0
			41	10	51 14

SURVEY No. 54

Pot No. 1

Part of Pot No.	Area		Assessment		
	A.	G.	R.	A.	P.
1	2	27	5	13	0
2	1	25	3	9	0
3	0	16	0	14	0
4	0	12	0	10	0
5	1	5	2	7	0
6	1	5	2	7	0
7	0	4	0	3	6
8	1	30	3	12	0
9	0	29	1	9	0
10	0	15	0	13	0
11	0	15	0	13	0
12	0	10	0	8	6
13	0	10	0	8	6
14	0	20	1	1	0
15	0	19	1	1	0
16	2	11	4	14	0
17	1	28	3	11	0
18	1	31	3	14	0
19	0	36	1	15	0
20	0	27	1	8	0
21	0	31	1	11	0
22	0	6	0	5	0
23	0	7	0	6	0
24	0	15	0	13	0
25	0	5	0	4	6
26	0	7	0	6	0
27	0	7	0	6	0
28	0	10	0	8	6
29	0	35	1	15	0
30	1	2	2	5	0
	23	20	51	0	0



Case No. 15

In the case of poorer land the amount of sub-division and fragmentation is naturally less so far as the figures are concerned, though from the economic point of view matters are often at least as bad.

The following figures are for the village of *Khadki*, taluka Man, district Satara. The soil is of the poorest and the rainfall as capricious as anything in the Deccan. The lands of this village may be taken as representing land on the very margin of cultivation, indeed most of them are well below the economic margin:—

Occupied area	...	...	2,716 acres
Assessment	...	...	Rs. 544
Average assessment per acre	...	...	3 annas, 1 pie
Number of landholders	...	...	160
Number of separate plots	...	...	825
Average size of holding	...	...	17 acres
Average size of plot	...	...	2½ acres

In the great majority of holdings, however, the size of the separate plots is much bigger than this. The patil has the largest holding with 137 acres divided into 17 plots, the average size of each plot being 8 acres. It is in the survey numbers which contain a well that fragmentation is marked, *e. g.*,—

Survey No. 191: area 16 acres; assessment Rs. 4.

There are 14 separate plots in this field, belonging to 14 separate persons, and each of these persons has a share in the one well in the field.

Survey No. 201: area 20 acres; assessment Rs. 10

There are 22 separate plots in this field belonging to 22 separate persons, and each of these persons has a share in the one well in the field.

Case No. 16

The figures given below are for a tract where the pressure of population on the land is comparatively small and the holdings still fairly large:—

Arvi, taluka Dhulia, district West Khandesh:—

Occupied area	...	3,698 acres
Assessment	...	Rs. 2,150
Average assessment	...	About 9 annas per acre
86 holders have holdings of less than 10 acres		
74 holders have holdings from 10 to 20 acres		
60 holders have holdings from 20 to 50 acres		
9 holders have holdings above 50 acres		

Anakwadi, taluka Dhulia, district West Khandesh:—

Occupied area	...	1,300 acres
Assessment	...	Rs. 556
Average assessment	...	7 annas per acre

The Marwari money-lender owns 356 acres which he leases out to others.

Of the remaining land 7 holdings aggregating 411 acres are between 50 and 70 acres each. The remaining 33 holdings, aggregating 533 acres, average out at 16 acres apiece.

The land of the above two villages is light soil, growing bajri and cotton, and the amount of irrigation is negligible.

Case No. 17

The last case refers to a typical cotton village in the East Deccan, where the soil is deep, the rainfall somewhat precarious and the pressure of population on the soil comparatively small.

Murgundi, taluka Athni, district Belgaum—

Occupied area	... 2,327 acres
Number of holdings	... 153
Average area of holding	... 15 acres
Number of separate plots	327, i.e., slightly over 2 per holding.

It will be seen that here neither sub-division nor fragmentation is acute.

Fragmentation occurs, however; e. g. :—

Holding A, 31 acres in 7 plots

Holding B, 12 acres in 6 plots

Holding C, 30 acres in 8 plots

Per contra many of the other holdings are unfragmented.

There are 113 working bullocks, i. e., one pair for 40 acres

APPENDIX II

THE EXTENT OF FRAGMENTATION AND SUB-DIVISION OF HOLDINGS IN OTHER COUNTRIES, THE CAUSES OF THE SAME AND THE REMEDIAL MEASURES TAKEN

England

In England, as is well known, the law of entail, the custom of primogeniture, and the difficulties involved in the conveyancing of land, have resulted in the concentration of the land in the hands of a very few persons. It was estimated¹ not very long ago that there are in Great Britain not more than 250,000 owners of land, and

¹ *Free Land* by Arthur Arnold (1880)

that four-fifths of the land belongs to about 7,000 persons. Consequently there has been in England no question of excessive sub-division of land,—indeed the problem has been the exact reverse, *viz.*, the over-concentration of land in the hands of a few people; and the land legislation that has been undertaken or projected in recent years has been intended to encourage and promote sub-division of land and to bring small holders into existence.

France

In France the situation is the opposite of that in England. The Code Napoleon enacts that on the death of the father property must be equally divided amongst all the children, and limits the parental power of testamentary disposition of property to a part equal to one child's share. This law was bequeathed to France by the authors of the French Revolution. It is designed to promote equality, and to secure the rights of the whole community in the distribution of public wealth. Even before the French Revolution there were many small holdings in France, but it is undoubtedly the case that the operation of this law has caused and continues to cause a great sub-division (and incidentally fragmentation) of holdings. It has roughly been estimated¹ that in France there are 5,000,000 land owners who own estates averaging $7\frac{1}{2}$ acres each, 500,000 who own estates averaging 75 acres each, and 50,000 who own estates averaging 750 acres each. It is asserted that together with the sub-dividing action of the law, another consolidating force is in operation, which arises from the fact that the peasants are very hard-working and frugal, and manage to save enough money to purchase small parcels of land adjoining their own, and to round off their own small properties. The fact that in France families are usually small also mitigates the evil. Still in some parts of France the holdings have been sub-divided and fragmented to an extent which is very prejudicial to effective production and a demand has arisen² in France for a modification of the law which leads to such results, with a view to creating peasant holdings of the right size and shape, and to reconstituting into solid holdings the existing scattered plots. This demand has never been met in full by legislation, but Acts³ passed in 1908, 1909 and 1910 allow every farmer to voluntarily place beyond the possibility of expropriation and seizure for debt a holding of a value not exceeding 8,000 francs

¹ M. de Lavergne *Economie Rurale de la France*, 1875

² M. Jouzier *Economie Rurale*, pages 344-355 (1903). Bulletin of Economic and Social Intelligence for December 1910, issued by the International Institute of Agriculture, Rome.

³ M. Jouzier *Economie Rurale*, pages 344-355 (1903). Bulletin of Economic and Social Intelligence for February 1914.

(Rs. 5,000) which is occupied and worked by his family. This holding remains a joint family property. It is now proposed to extend the scope of this law, presumably in the directions already taken in other European countries (*vide post*).

Germany

In Germany the Law of Inheritance varies greatly in the different States. In Prussia the law and custom favour the formation of large estates, while in Southern Germany the reverse is the case.

In *Wurtemberg* a certain moderate portion, defined by law, of the father's property passes to each child, and over the remainder the father is allowed liberty of disposition. So far as is possible, an effort is made to leave a small farm intact to a single son, but it frequently happens that the daughters are on their marriage allotted a share of the paternal land, and as the husband is probably the possessor of a piece of land elsewhere in the commune, the sub-division and intersection of land became serious, and it was estimated¹ in 1880 that the land in *Wurtemberg* was held by 280,000 peasant owners with less than 5 acres each, as against 160,000 proprietors of estates of more than 5 acres each.

In *Bavaria* part of the State has adopted the law of inheritance laid down by the Code Napoleon, and in the other part the law ordains² that on the death of the father one-third to one-half of his property (according to the size of the family) must be divided equally amongst his children, and over the remainder he can exercise a testamentary disposition. Great efforts are made by the peasants to keep their farms intact, but the land has become much subdivided.

In his "Report on the Tenure of Land in the Grand Duchy of Hesse" submitted to the Foreign Office in 1870, Mr. R. B. D. Morier makes the following interesting remarks:—

"In the great majority of cases the holdings are dispersed over the arable land of the community in single parcels intersected by those of other holdings. In many parts of the Grand Duchy the sub-division arising from these causes has reached an intolerable pitch, and various consolidating acts have been passed for the purpose of remedying the evil. These acts have, however, only been partially successful, and a new measure is being at the present moment prepared which, it is hoped, will prove more efficacious. In the districts in which the consolidated farms are situated, immemorial custom has ruled that the property in its entirety descends to one child, almost invariably

¹ *Agrarian legislation in Germany during the present century* by R. B. D. Morier (1880).

² *The Law and Custom of Primogeniture* by the Hon. G. C. Brodrick.

the eldest son, and the younger children do not avail themselves of their undoubted right to claim their *pars legitima*, though it is, of course, usual that some sort of provision is made for them."

During the past 30 years much work has been done in Germany in the way of creating and resettling peasants holdings on an economic basis. This work has been entrusted to Land Commissions which have been created by the legislative enactments of various States dating from the seventies and eighties. In Prussia eight General Commissions exist for settling land on an economic basis either by the sub-division of large estates, by restriping or by the occupation and improvement of waste lands. The aggregate area of the economic holdings so formed is about 1,350,000 acres. The economic holdings so formed may not be sub-divided nor may they be added to the lands of large land-holders.¹

A short account² may be given of the work undertaken by the Commission in West Prussia where the main problem is to divide up large estates into small ones and to settle peasant farmers on improved waste lands. This Commission was founded by a law of 1886 which gave the Commission certain powers and placed at its disposal a fund of 100,000,000 marks. With this money the Commission buys large estates, divides them into suitable small farms, and contributes to the necessary expenses of the settlements. These small farms, are given out—

- (1) on lease for definite periods,
- (2) on freehold, on payment of the price,
- (3) on purchase by instalment, and subject to certain definite conditions.

System No. (3) is the most popular.

By a law of 1896 the small farms, so formed, can be sub-divided or separated into parts only with the consent of the Commission. They can be transferred to persons outside the family of the holder only with the consent of the Commission, but this consent can be refused only when the effect of the transfer would be to merge the farm in a larger estate. To preserve the farm in tact the law of 1896 subjects these farms to special laws of inheritance differing from the principle of equality of heirs as established by the German Civil Code of the same year. The law lays down that in the absence of testamentary disposition the holding passes intact to the principal heir, and other heirs can obtain only limited shares in the form of annuities.

By 1908 the funds at the disposal of this Commission had been raised to 550,000,000 marks. In purchasing land

¹ Bulletin of Economic and Social Intelligence for March 1912, published by the International Institute of Agriculture, Rome.

² *Ibid.*, December, 1912.

compulsory expropriation is authorised when the land cannot be obtained otherwise. The land is not handed over to the peasants in its rough state, but drainage or irrigation works are previously undertaken. Roads are made and great care is taken to fix the area of the holdings with regard to their productivity, and to give each holding a good assortment of various qualities of soil without scattering the fields. Endeavor is made to place the homesteads sufficiently far apart to give each homestead plenty of elbow room and to situate it with reference to its land so as to effect economy of time and labour, but not so far apart as to check the development of the collective spirit or of co-operative action.

In Southern Germany where the holdings are already small and fragmented, as noted above, the method by which the Commissions proceed is mainly restripment, *i.e.*, the readjustment of fragmented holdings into compact and conveniently situated blocks. The following examples of this work may be given :—

“The lands of Hohenhaida in Saxony consisted of 1,374 acres belonging to 35 proprietors. It consisted of 774 separate plots. Restripment reduced the number of plots to 60 most of which were served by a single central road. The work was executed at a cost of 3,126 francs (Rs. 1,953), *i.e.*, at a cost of (about) $2\frac{1}{2}$ francs (Rs. 1-9-0) per acre. By the saving of area occupied by roads and fences 21 acres were gained, that is to say, more than the cost of the operation. In consequence of the restripment it has been necessary to increase the size of the barns to provide for the larger outturn of the farms.”

In another case from Ostheim, in Hanau, it is stated¹ :—
“After first rising in revolt against the proposed readjustment of their holdings, stoning the surveyors and chasing them away, the people of this commune ended by submitting to the proposal, and having seen the advantages which resulted, showed their appreciation in the way that they received the Minister for Agriculture. The Minister was received by almost all the male population on the outskirts of the village, and the chief of the deputation, who four years before had lodged the protest in Berlin, advanced and thanked the Minister for the readjustment of lands which had been carried out against the wishes of the inhabitants, stating that they had not understood the matter, but now they quite appreciated the advantages of the operation which had in many cases trebled the value of the land affected.” In the above cases restripment was carried out under the law upon the application of a majority of the landholders affected.

¹ Bulletin issued by the Ministry of Agriculture in 1894 and quoted on pages 352-353 of M. Jouzier's *Economie rurale*.

Some of the most recent legislation for preserving economic holdings intact has been passed in Schwartzburg Sondarshausen¹. A law of 1888 required the previous consent of the Provincial Governor before estates could be subdivided; but this was found to be inadequate. A "New Law against Sub-division of Land" passed in 1912 enacts that this consent to sub-division shall be given only on three conditions:—

- (a) Payment of a fixed tax,
- (b) Right of retrocession,
- (c) Right of pre-emption for the Commune and Rural Bank.

The object of this law is to prevent sub-divisions of land which are anti-economic and disastrous to the good working of farms.

Switzerland

In Switzerland sub-division and fragmentation has been carried to such lengths that in one canton (Ticino) the average size of a farm is only 9 acres and the average number of separate parcels in each farm is 35, the average area of each parcel being $\frac{1}{4}$ of an acre. When legislation was first introduced for restriping (*i.e.*, readjustment of scattered holdings) the opposition on the part of the landholders was great. The necessity for overcoming evils caused by this minute sub-division and for improving means of communication was so great, however, that the legislation was forced through, and the results obtained were so satisfactory that the new provisions of the Swiss Civil Code, fixing once for all the principle of the necessity for the minority to conform to the decision of the majority, was well received by all parties concerned; and it is now held in Switzerland that the economic future of the country depends chiefly on the manner in which these provisions are applied in different cantons. The large number of small farms is regarded as a benefit, and all that the legislation aims at checking is a too minute sub-division which seriously checks production and land improvement. The earliest legislation took place in the Canton of Lucerne in 1808 and in 1837 to encourage the union of small holdings; but these laws remained a dead letter because no provision was made for overcoming the opposition on the part of the minority.

The first law introducing the element of compulsion was passed in Ticino in 1852. This law granted to a proprietor the right of compelling his neighbors to sell to

him or to exchange plots of less than 300 square metres adjacent to his own property. The neighboring proprietor might require in exchange a plot superior by one-fifth to the value of the plot given up by him. This law also remained inoperative. The law under which progress has been made is the law of 1902 for "the restriping and re-adjustment of landed property." This law lays down that as soon as the undertaking is planned the consent of a majority of proprietors concerned, or, in default of this, of a number of proprietors who represent half the land to be restriped will be sufficient to compel the opposition to associate in the work. Restriping may even be ordered officially by the Council of State in the case of any commune or region of 10 hectares, when the average extent of the parcels in such commune or zone is less than 500 square meters. In 1908 restriping was declared to be compulsory by the Council of State in six communes.

Other Cantons have passed very similar laws, and in many Cantons restriping has been systematically ordered on a compulsory basis in connection with the construction of public works such as road-making, canals, drainage or surveys. Commissions are appointed to carry out the work and grants of public money made to facilitate the work. In the Canton of St. Gall it is shown that restriping with closer grouping adapted to local conditions has caused all the inconveniences due to sub-division and fragmentation to disappear, and the enhanced value of the holdings resulting from this work is estimated at from 60 per cent to 77 per cent.

As a result of the experience gained by the operation of these communal laws the principle has now been accepted in the Swiss Federal Legislation, and Article 703 of the Swiss Civil Code provides for the compulsory restriping of land when the project is approved of by two-thirds of the persons interested, representing more than half the land. The Cantons have the power of modifying this provision for their own purposes, and work on their own laws. Mr. Girsbarger estimates the increased value obtained by restriping at 500 francs per hectare (Rs. 153 per acre) and calculates the minimum annual saving due to the work already undertaken at one million francs¹ (equal to Rs. 6,25,000).

Austria

In Austria extensive agricultural work connected with the reform of land tenures, the reclamation of waste lands, homestead settlements, etc., is undertaken by Commissions. The restriping of fragmented holdings is part of the work

¹ *Ibid.*, March 1913.

entrusted to such Commissions. Under the law of 1883 restriping could be enforced upon the application of half the landholders affected, but under a recent law restriping can be enforced upon the application of one-third of the landholders affected, provided that they enjoy half the net yield of the parcels of land to be restriped. Much work of this nature has been accomplished and it is recorded that "wherever restriping has been carried out it has realised the results expected from it, increased the yield of the land and reduced the cost of production."¹

Spain

The work undertaken by the Government with a view to the economic regeneration of farms in Spain² falls under three heads—

- (1) Splitting up big states,
- (2) Uniting scattered parcels into economic holdings,
- (3) Bringing waste and unreclaimed land under cultivation.

Expropriation is permitted in the case of splitting up big holdings, and also in the case of restriping when it is necessary for the sake of providing each farm with an area sufficient for economical farming.

Specially aided co-operative institutions are brought into existence to aid these colonies of homestead farms.

Denmark

In Denmark there is in each Department a Commission for the creation of small economic holdings. Between 1909 and 1914 the State has advanced sums amounting to the equivalent of Rs. 1½ crores for this purpose. The economic holdings so created cannot be sub-divided nor united with other land.³

Sweden

In Sweden the work of reconstituting peasants' farms was commenced a century ago. The objects of the operations were—

- (a) To create compact holdings out of scattered lots,
- (b) To enlarge farms which were too small to an area that would admit of economical farming.

The first law was passed in 1807, and an amended law passed in 1821 is the law still in force under which the

¹ *Ibid.*, April 1912, May 1913.

² *Ibid.*, December 1912.

³ *Ibid.*, March 1912.

work is done. This work has gone on very steadily for a century and some 260,000 farms have been reconstituted on this basis, and whereas the number of plots of land constituting a peasant's holding was formerly often from 20 to 40, the average number is now only 2. Of the total number of 260,000 farms mentioned 180,000 of the holders continue to live in the villages, and the other 80,000 holders, with their families, nearly a third part of the peasant landholders of Sweden, have in the past century quitted the village site to go and live on their lands now united into larger lots.¹

Italy

- In Italy the Law of Inheritance allows a landowner to leave half his property as he likes, but the other half must be divided equally amongst his children. Owing to this law holdings have become much sub-divided.

In 1894 an Act was passed which enabled a landholder having land, the net income from which was calculated at between 200 and 600 francs per annum, to constitute this land as a "family property". A farm so constituted ceased to be the property of an individual and was held jointly by the family. It also became inalienable and could not be seized for debt.

In 1910 a further Bill was introduced to facilitate the creation of small farms of from $2\frac{1}{2}$ to 7 acres each, to form which peasants could obtain from the Government loans on easy terms. The farms so formed were to remain indivisible.²

Russia

The case of Russia is instructive because prior to 1906 a large part of the land was held jointly by families on a system somewhat analogous to the Hindu joint family system. With a view to improve the extremely backward and ineffective system of farming in Russia and to raise the peasants from their abject state of poverty, important agrarian legislation was undertaken in 1906. The two most important factors in the reforms instituted consisted of—

- (a) the abolition of collective family ownership, and the substitution of the head of the family as the free and independent owner of the holding,
- (b) the reuniting in one contiguous holding the scattered plots which formerly made up the holding.

Ibid., October—November 1910.

Ibid., Feb. 1911.

Ibid., June 1915.

Ibid., July 1915.

Ibid., Feb. 1917.

These measures were applied in the case of some lands on the application of the holders, and in the case of others compulsorily.

It was objected that it was unjust to deprive the other members of the family of their rights in the holdings, and the theoretical "injustice" of the proceeding was admitted; but it was held that these men who were dispossessed of their illusory rights to a share of the produce of uneconomic holdings would be better off as free labourers, and that the measure was necessary for the regeneration of agricultural practice. As a matter of fact agricultural wages in Russia have risen largely since that time, and the condition of the dispossessed sharers has been improved.

As a result of these measures it is now reported that—

- (a) More than three-fourths of the investigated farms have now land in one contiguous piece, while formerly the great majority consisted of six or more separate pieces of land, and many of them of 30, 40 or even 100 pieces.
- (b) Most of the farmers now live on or near their own farm.
- (c) More than 40 per cent of the peasants have now carried out marked improvements on their farm lands.
- (d) Agricultural implements have been greatly improved in quality.
- (e) Agricultural practice has been greatly improved.
- (f) The harvest gathered in recent years on these newly settled farms is heavier than on farms still held on the old system.

Belgium

In Belgium the Code Napoleon is in force and its operation has resulted in the creation of many small holdings, but in Flanders, at any rate, the holdings, though small, have not been seriously split up into separate parcels. This danger to a large extent was averted by the sagacity and care of the small land-owners. M. Emile de Lavalaye states¹: "The Flemish peasant attaches too much value to the proper outline of a field to break it up into pieces; he would rather sell it altogether. He would never think of dividing the farm he cultivates amongst his children. On the contrary he will submit to extraordinary sacrifices to give the farm the size and typical shape it should have."

¹ *Land System of Belgium and Holland*, by M. Emile de Lavalaye (1880).

Holland

In Holland there is an interesting tenure known as *Beklem-reght* which constitutes a permanent tenant right. This right can be sold, mortgaged or bequeathed, and is very similar to the Occupancy Right of the Bombay Presidency, but with this important difference that the right is indivisible and so presents an effective bar to injurious sub-division of land. In spite of this they are proposing in Holland to introduce legislation to facilitate restripment.

Jersey

In Jersey the Law of Inheritance is substantially the same as in France, but with this important difference that when a farm is of an area less than $1\frac{1}{2}$ acres the eldest son inherits the whole.

Japan

70 per cent of the holdings in Japan are smaller than $2\frac{1}{2}$ acres, and are much fragmented. The cultivated land of Japan is for the most part sub-divided into small, narrow and irregular lots, with an insufficient and often unreasonable system of roads, and often imperfectly and not suitably irrigated, and drained. With the object of increasing the produce of the soil, and preventing the inconvenience caused by the existence of numerous small lots belonging to the same proprietor, and scattered over a large area, the Japanese Government, following the example of other countries, has appointed Commissions to effect readjustment of lands.

A law for the readjustment of lands was passed in 1899 and amended in 1909. The law provides for—

- (1) the necessary interchange of land and the restriping of lots,
- (2) the construction of roads, irrigation works, etc.

In order to obtain authorisation to form a Syndicate for the readjustment of farm lands it is necessary to obtain the consent of at least half the landowners in the tract in which the Syndicate intends to work, and these landowners must represent two-thirds of the land affected. The farms restriped are exempted from land tax, and special credit institutions are provided to finance them.

So far as the work has gone, it has resulted in considerable improvements in roads and canals, an increase in rice growing, and the general convenience of all concerned.

¹ *Ibid.* Feb. 1913; and *Outlines of Agriculture in Japan*, pp. 22-3, issued by Agricultural Bureau, Tokio (1910).

APPENDIX III

SHORT STATEMENT OF OBJECTS AND REASONS FOR A BILL TO ENABLE LANDOWNERS IN THE PRESIDENCY OF BOMBAY TO PREVENT THE EXCESSIVE SUB-DIVISION OF AGRICULTURAL HOLDINGS¹

1. It has long been a subject of comment in India that the land-holdings of cultivators have become sub-divided up to a point at which they are now, in many localities, very small, and that the holdings, whether large or small, are frequently "fragmented" in a manner which is very prejudicial to effective cultivation. This progressive process of sub-division and fragmentation is due to the increase of population and to the fact that the laws of inheritance which are in force in this country operate in such a way as to give to each male member of a landholder's family a share in the family land.

2. The same causes have produced precisely the same results in other countries, though in hardly any other country has the process been pushed so far. In many other countries legislation has been undertaken to remedy this state of affairs and has been found to be effective, resulting in an increase in the outturn of agricultural produce and a decrease in the cost of production. Such legislation has come to be recognised, even in countries where at first it met with much opposition, as altogether favorable to economic progress and to the production of increased wealth. The lines on which legislation has usually proceeded have been the compulsory and voluntary consolidation of holdings coupled with the provision that holdings once consolidated may not afterwards be sub-divided.

3. In the Bombay Presidency in general, and in particular in the Konkan, West Deccan and the garden and rice tracts of Gujarat, sub-division and fragmentation of land have reached an intolerable point. Over large tracts the average size of the holding is only two or three acres, while fields measuring less than half an acre are found to be sub-divided into more than 20 separately owned plots, many of them of less than one guntha (one-fortieth of an acre) apiece. The process of sub-division and fragmentation is continuously going on, both in tracts where the situation is already acute and in tracts where the holdings are still, on the whole, of reasonable dimensions.

¹ It has unfortunately proved impossible to reprint the text of the proposed bill owing to reasons of space. The Illustrations, and Notes on Clauses are also omitted, but the Schedule is printed on p. 230. Any person specially anxious to obtain a copy of the bill is recommended to communicate with the Director of Agriculture for Bombay, at Poona, or with the Editor of this *Journal*.

4. The evils of this excessive sub-division and fragmentation of land may be briefly stated as follows:—

- (a) they impede current cultivation and waste time;
- (b) they prevent permanent improvements being undertaken;
- (c) they prevent a cultivator from living on his farm;
- (d) they prevent the organisation of labour and capital;
- (e) they frequently result in second crops not being grown;
- (f) they sometimes send the land out of cultivation altogether;
- (g) they cause enmity amongst neighbors, leading to litigation and permanent feuds;
- (h) they produce a generally uneconomic situation.

In view of the fact that a large proportion of the cultivable land has been reduced to these unfavorable conditions, it is almost impossible to expect any substantial economic improvement amongst the majority of the landholders until the fundamental impediment is removed. So long as the existing laws of inheritance continue to operate in such a way as to sub-divide holdings continuously from generation to generation it is impossible either for landowners or for the executive government to take any steps in the direction of consolidation of holdings which would have more than a temporary effect. The object of this bill is to enable such landowners as may wish to do so to check the further sub-division of their lands and to enable them, when it is otherwise possible, to effect a permanent consolidation of their holdings; and also to enable the executive government to secure the same results in respect of unoccupied land. The legislation proposed is purely enabling, and it will be operative in the case of any holding only upon the expressed wish of every person possessing an interest in that holding.

5. The scheme embodied in the proposed bill for securing these objects is briefly as follows. In order to be constituted an economic holding a plot of land must be entered as such in a register prescribed by rules. If the land is occupied, it will rest with some person having an interest in the land to make an application to the collector to have the land registered as an economic holding. (The word *interest* is here used in the legal sense. Cf. the use of the word in section 58 (a) of the Transfer of Property Act, 1882). Unless the collector considers that there are sufficient grounds for rejecting the application, he holds a careful enquiry, in which he follows a procedure similar to that prescribed in the Land Acquisition Act, 1894. If the proceedings show that all persons interested agree, the land is registered. Land vesting absolutely in Government may be registered without enquiry. The holding must in any

case be registered in one name only, and the act of registration annuls all the interests of all other persons, except the registered owner, in the holding. Thereafter the owner cannot divide the plot, but must, so long as he owns it, keep it entire. He may sell, mortgage or otherwise dispose of it as an entire unit, but may not dispose of part of it or do anything that might result in splitting up the holding. On the death of the holder, if he has not disposed of the land by will, it will devolve upon a single heir. If the provisions of the bill are contravened (for instance, if the holder mortgages a part of his holding and the mortgagee obtains a decree for possession), the collector is empowered to send a certificate to the court, and the court will set aside its decree or order. The collector may also evict the person in wrongful possession. When a plot has once been constituted an economic holding, the registration cannot be cancelled except with the consent of the collector: the grounds on which cancellation will be allowed, will be laid down by rule, and it is proposed that it shall be permitted chiefly in cases where economic considerations indicate that it is expedient.

6. There is some difficulty in framing provision to secure the integrity of the holding in spite of existing law and custom in favor of the sub-division of land. As will be seen, the above scheme aims at effecting the object in view by giving the registered owner an exclusive interest in the holding at the outset; by preventing the sub-division of the holding by transfer *inter vivos* or by will or by the operation of law; and by preventing sub-division in the case of the owner's death intestate. Each of these provisions appears essential to the success of the bill. With regard to the first, it may be said that wherever two or more persons are interested (whether jointly or otherwise) in a holding there is a probability that at some time the holders will desire to divide the land. The necessity for the second provision seems obvious; but it may be observed that in order to prevent partition the holding must not be permitted to become joint property or coparcenary property according to Hindu law. With regard to the third, there is considerable difficulty. If the operation of any law under which property is divided on an intestate succession is excluded, some rule of succession to take its place must be devised. Hindu and Muhomedan law, the Indian Succession Act, 1865, and the Parsi Intestate Succession Act 1865, all contemplate the division of immoveable property on succession. The Hindu law, indeed recognizes impartible property, but the principles governing the succession to such property do not appear to be sufficiently clear for application to agricultural holdings, in connection with which it is desirable to prevent litigation as far as possible. Moreover as an

economic holding could be transferred to any person, a law of succession that will prevent its sub-division in all cases, whatever the law of succession to which the transferee is subject, is required. The difficulty cannot apparently be surmounted except by enacting special rules of succession for economic holdings. Some provisional rules for this purpose have been set out in the schedule, but they are intended merely as an example of what is indicated, for it is felt that the matter is one which can more satisfactorily be dealt with later, when those classes of the community who will be affected have had an opportunity of expressing their opinions on the bill.

THE SCHEDULE

1. The succession is traced from the person last entitled to the holding.

2. The succession is in the first place to the issue lineally of the person last entitled to the holding, the male issue being preferred to the female.

3. Where there are two or more heirs in equal degree, the eldest only succeeds.

4. The lineal descendants of any person deceased represent their ancestor, that is to say, they occupy the same position as he would have occupied if he had been alive.

5. On failure of lineal descendants, the nearest lineal ancestor succeeds.

6. A paternal ancestor and his descendants are preferred to a maternal ancestor; a male paternal or maternal ancestor with his descendants is preferred to a female paternal or maternal ancestor respectively.

7. Illegitimate relationship is not recognised.

8. A person related by the half blood is capable of being the heir and stands in the order of succession next after any relation in the same degree of the whole blood and his issue where the common ancestor is a male, and next after the common ancestor where the common ancestor is a female.

9. Adoption is recognized whenever it would be recognized under the law of succession to which the parties are subject in cases not governed by this act.

THE ART OF ECONOMIC DEVELOPMENT

(CONTINUED)

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V.—PRINCIPLES OF FINANCE

1. *Definition and Scope of Finance*—Finance is always considered to be one of the most elusive and difficult subjects with which practical men of affairs are obliged to grapple; and much study and experience are supposed to be necessary before its principles can be so thoroughly understood that they may be safely applied in government, in business, and in private life. Yet the theory of finance is not intrinsically difficult, like higher mathematics, or the arguments of metaphysics. Finance seems difficult only because it has never been converted into an ordered body of precepts, logically developed from a scientific study of financial operations. Such study must relate them on the one hand to the ends or objects for which they are undertaken, and on the other hand to the economic laws characteristic at the time of the social order in which the finance is to be practised. Finance must also be co-ordinated with psychological, physical, and even with political and other social generalizations; but, speaking generally, these are of somewhat less

importance for successful finance than on the one hand a clear and successful determination of the aim in view, and on the other hand a full consideration of the relevant economic laws and facts.

At the outset it is necessary to understand clearly in what sense the word *finance* is here used. My intention is to use it in a wide sense which corresponds as nearly as possible with the ordinary and scientific acceptation of the term, whilst giving it perhaps a somewhat clearer and more precise meaning. There is both an art and a science of finance; and the most convenient nomenclature is to use the word *finance* by itself to mean the art, and to say specially *science of finance* when the science is meant. Accordingly *finance* may be defined as the art of regulating the transactions of any individual or corporate body connected with the acquisition, care and expenditure of money so as to achieve a certain aim or end, or set of aims. This is the meaning of the word when used in the combination *public finance*; and in colloquial language "high finance" means the art or business of carrying on big transactions by bankers, underwriters and issuers of stock exchange securities, as in London and other great monetary centres. A financier is the person who practises the art or business of finance.

When we turn to the literature of economics we find, however, that the word *finance* is generally used in the sense of a science of finance to denote the study of all transactions connected with the acquisition, care and expenditure of money, and is often extended to include the statistics of banking operations, prices, and so forth.

It would seem to be desirable, however, to have a precise and extensive definition of the science of finance corresponding in scope with that usually

allowed, and stated above. We may say, therefore, that the science of finance investigates and treats of all the monetary transactions of individuals and business firms, and of all corporate bodies whether public, such as the State and municipalities, or private, such as companies and charitable associations. Banking and insurance form special sections of finance, the monetary transactions being the principal part of such businesses; but I exclude from the science of finance statistical investigations of currency circulation and of prices, which belong to the theory of prices and are part of the theory of exchange. For many purposes it is convenient to distinguish between *private* and *business* finance; and business finance may be divided into *partnership* and *joint-stock finance*. Then we have the transactions of nonprofit-making or charitable endowments, societies and clubs, universities, associations, and so forth; and the finance of the municipal and district councils and boards, and of the State itself in its separate divisions of the provincial and central governments. The former may conveniently be called *association finance*; the latter, *i.e.*, central government, provincial and local finance, is properly called *public finance*.¹

The scope of both the art and science of finance is here extended equally to both private and public monetary transactions, because it appears to me desirable to recognize the essential identity of the principles which guide financial operations whether such operations are carried out by private individuals, by corporations, or by the State. The underlying principles remain the same whatever the constitution and powers of the body controlling the financial operations. It is only in working out their applica-

¹ German authors have used the word *Finanz* to mean exclusively public finance, and a few American authors have followed them, notably H. C. Adams, in his book *The Science of Finance*.

tion that the difference of the legal status of the owners of the funds concerned introduces differences in the weight or incidence to be given to the different principles of finance. One of my purposes in setting forth here some of the fundamental principles of finance will be served even by the mere adoption of the definitions of the art and science which I have already stated; because the recognition of the applicability of the same underlying principles of finance to transactions both public and private leads immediately to the important idea that a change in the financial agent, as from a private individual to a limited company, or from a company to the State, is of far less significance than is usually supposed. One peculiar merit of company management appears to be that it forces the persons in control to learn the elementary principles of finance. If these be systematized they will be the more readily available to persons controlling funds under other forms of ownership.

2. *Aims and importance of Finance*—It is clear that finance itself has nothing to do with determining or even studying the objects for which expenditure is made or proposed. In the conduct of any business concern it is a serious error to confuse finance with management, as may happen, for example, when the accountant or financial director of a company prepares budgets of expenditure rather than the manager. In public affairs it is equally serious to confuse finance with the determination of policy. It is almost as dangerous for control of the state to be vested actually or virtually in a man who is by training primarily a financier as in a soldier.

It may be said that the aim of finance is to lay down the easiest path by which to reach a certain

goal. Money is the mechanism whereby the labor and property of persons may be directed towards the attainment of any object. The state no longer, except in war time, forces the labor of its subjects and requisitions their property. Instead, it forces them to provide it with money by taxes; and thus arises the business of the financier, who is supposed to discover the least onerous and the least costly method of raising the necessary funds, and to make the dispositions required by the policy of the state for their expenditure.

It is the aim of statecraft or the art of politics to indicate the objects or goals of public activities; and the political leaders, or members of the government in power for the time being, are the persons who decide on a certain policy. The financier has then to make all the necessary monetary arrangements for realising the projects or policy adopted. He is supposed to be able to say the best way of doing so with the greatest security. The true aim of finance is to secure the greatest efficiency in reaching the objective by the proper disposition of the monetary transactions.

On the other hand, whilst the methods of finance need to be subordinated to the objects of policy, it is yet true that the financier in business must be concerned with management, and in government with policy, to the extent that financial considerations of ways and means may properly veto or limit particular proposals for action, at least temporarily; and further he must know enough of business or politics respectively to see that no injury is done to the firm or to the population by the financial measures he proposes for providing ways and means for the expenditure decided to be necessary to reach the end in view.

It will be perceived from the foregoing description of the scope and aims of finance that the practical

importance of the study of this subject can hardly be overestimated. Finance enters into all the affairs of daily life, both in business and the home. But it is an important subject, not only because its use is so widespread; but even more because of the serious issues which bad finance entails, whether it be to an individual, a business firm or company, a public authority, or to the State itself. The individual may ruin his prospects, and the happiness of himself and his family for life; the business firm or company may come to an end, involving the partners or shareholders in the misfortune; the local authority may get into such difficulties that it either fails to redeem its debt, or, more probably, ceases to make adequate provision for urgent public needs; and if the finance of the State itself is bad, even a good policy is nullified, and the population becomes ground down under a heavy load of taxation for which it gets no return in public utilities. In every case, almost without exception, the heavy losses of money mean real and direct losses of happiness—often a great measure of their total happiness—to the persons concerned.

Much of this tremendous loss could be saved by the wide diffusion of a proper understanding of the fundamental principles of finance. These require to be formulated with a simple and direct clearness. Full account should be taken of the broad underlying generalizations; and their applications to everyday financial transactions, which is indeed a simple matter, must be kept free from all the usual encumbrance of detail, and from connection with any particular customary method of book-keeping. Once this is done people will learn to guide their conduct by deductions from a few general principles; and they will no longer have to depend on what they happen to remember of the conventional rules of good finance,

supplemented by their new experience, or their friends' advice. These are all uncertain guides because nothing but a general principle can meet the circumstances of all possible events.

3. *The Three Systems of Finance.*—According to the relations of revenue and expenditure to one another we may recognise three distinct *systems of finance*, as I think it is appropriate to call them. It will be convenient to name them as follows:—

- (1) The system of Predetermined income,
- (2) The system of Predetermined expenditure,
- (3) The Commercial system.

Predetermined income is the best name I can find to indicate the type of finance in which the income is more or less a fixed quantity; or more accurately, in which the income is not subject to variation at will by the recipient, except within narrow limits or very slowly. It follows that the practice of finance in this system is to ascertain what income will become available for the ensuing year and to adjust the expenditure under the various heads in such a way as to get the maximum of advantage out of the income which, it is estimated, will be available. The simplest example of this form of finance is the case of any private individual employed in a permanent position either at a fixed salary or at a salary increasing according to a pre-arranged scale. He may earn a little extra money with work taken in his spare time; but in the main his income is predetermined. Other examples can be found amongst associations and institutions such as charitable homes, or any schools and colleges which subsist upon income from endowments or upon state grants. The most interesting and important example is to be found in the public finances of any state or territory which is in a primi-

tive or undeveloped condition. In such a state the people produce by their agriculture little more than is necessary to provide them with the means of subsistence. Consequently there is but a very small margin of the annual produce available to be taken either by the state or by the landlords. As a matter of fact the state always assumes a prior right to the surplus income of its people over the bare minimum of subsistence, as being necessary to maintain its existence by providing for the exercise of the functions of government. The economic history of India provides abundant evidence that during the latter period of the Moghal Empire and the first few decades of the British rule the taxable capacity¹ of the people was very low, and the revenue which reached the Treasury was barely sufficient to maintain the Government. Certainly it was revenue which was incapable of expansion at the will of the Government. Hence the system of finance forced upon the Government of India in its early history was that of predetermined income. Owing to the fact that the uncertainty of varying assessments of land revenue leads to paralysis of improvements in agriculture, permanent or long period settlements have been adopted; and since the state income has so largely been taken in the form of land revenue, the system of predetermined income has remained in vogue in almost all British and Native State finance in India.

Predetermined expenditure is the name here given to the second system of finance. The idea underlying this name is that it is the expenditure rather than the income which is determined upon beforehand, and the income which is adjusted to the expenditure rather than the expenditure to the income available, as in the first system. I may give a fanciful example by supposing the case of a man whose wants are few

¹ The term *taxable capacity* is defined in the next section, p. 240.

as a rule, who decides what he wants to spend during the next week or month and then uses a part of his ample leisure time to work just sufficiently long to provide the income necessary to meet the expenditure determined on. Perhaps this example is not altogether fanciful, for casual labourers in India, as elsewhere, are rather given to working only when they are short of the means of subsistence or when some special need arises. The important example of this system, however, is that of the finances of some of the western European nations, more particularly England. There the Government prepares its budget of expenditure upon the basis of the public needs which are considered to be urgent; and every expenditure coming up to a certain level of urgency is submitted for sanction without direct reference to whether there are the funds available to meet it or not. When the Chancellor of the Exchequer has prepared his budget of necessary expenditure as submitted by the various departments, he advises as to the ways and means of raising the revenue required to meet this expenditure. He estimates the yield of the taxes which are regarded as fixed and of the other settled sources of revenue; and then he varies the rates of certain taxes considered to be suitable for this purpose, such as the income-tax and the duties upon tea, tobacco, spirits, and sugar. The aim is to adjust the income to the necessary expenditure as exactly as possible, the budget usually providing for a small surplus as a margin against possible under-estimation of the yield of some of the taxes of the year. The English municipal councils and county councils adopt a similar method of finance. Their revenue arises almost entirely from rates levied upon the annual value of real property, both buildings and land. The annual value of every property is assessed

every few years, and the rate is levied each half-year on all properties at a certain percentage, usually expressed as so many shillings and pence in the £1. This corresponds with levying so many annas and pies in the rupee.

The English municipalities, like the central Government, prepare a budget of expenditure according to what they consider to be the public needs in the way of new schools, construction of roads, town halls and public utilities of every description; and having decided on the necessary expenditure they proceed to make a rate which will yield the revenue required. This is done every half-year, when the rate may be put up or down 2d or 4d in £1 as the expenditure may need.

Yet another example may be given—of a big landlord of large agricultural estates who has not rack-rented his tenants, but normally charges them considerably less than the full economic rent, which in this case is equivalent to the balance of taxable capacity after deducting taxes actually paid. This landlord has a margin to increase his income whenever he may be in need of money for any serious necessity by raising the rents of his tenants, if, as in the English system, they are wholly or mostly tenants to will. The system of *abwabs* in Bihar would be classified here. The evils of the system are mainly due to the smallness of the margin above subsistence and the arbitrariness of such exactions from tenants.

In the Commercial system neither income nor expenditure is predetermined, but both may be varied from time to time, and in fact *should be varied* in the course of the business transactions. It is the essence of business, whether that of a merchant or of a manufacturer, that additional expenditure, wisely made, yields additional income greater than the

expenditure, thus increasing the profit. Every wise business man increases his annual expenditure in every direction which he finds remunerative by its yielding a more than equivalent increase of his income. The theory of economics shows what are the causes, or economic laws, that determine, at any time, what are the profitable directions of outlay. From our present point of view in finance, however, the only important point is that the expenditure and income are equally variable from time to time in accordance with the requirements of the business. This system of finance is equally applicable to every kind of commercial undertaking whether it is owned by a single individual, by a private firm or company, or by Government, or by any other public authority or institution. The commercial system of finance is the very essence of business; and the failure to recognize its essential difference from the system of finance necessary in the normal functions of Government has led to the failure of many commercial enterprises undertaken by Government, both in India and other countries.

4. *Taxable Capacity.* In a later section when we deal with the practicable methods for financing public works it will be necessary for us to consider taxable capacity as the ultimate basis of security for public debt. We shall find that the idea of taxable capacity is essential in the consideration of the question of the extent to which Government may itself undertake or control a greater or lesser proportion of the total social expenditure. The taxable capacity of any community may be briefly defined as the surplus produce of the people above what is necessary to maintain existence according to the standard of life prevailing at the time in the country concerned. This is not an exact definition, because the phrases, "maintain exis-

tence" and "according to" are extremely vague.

Before proceeding to give greater precision to the idea of taxable capacity, let me quote a well known author, Mr. Charles S. Devas¹ on this subject. "The notion of taxable capacity" he writes "is of great importance, and is not the absolute limit in each country of what can be extracted from the people by taxation, but rather is that limit of taxation which if habitually exceeded indicates over-taxation. To judge of this limit we must recall the chapter on the theory of consumption regarding the limitation of human wants, the distinction of necessities and superfluities, the meaning of absolute and conventional necessities and of the standard of life. Then we can lay down that whenever taxation, instead of being drawn from superfluities, makes an encroachment on absolute or conventional necessities, and threatens to lower the standard of life, the people are being taxed above their taxable capacity."

It is a mistake, he adds, "to adopt some percentage of the total income of a country as the criterion of over-taxation, and to say, for example, that as long as no more than 10 or 12 per cent of that income is taken for purposes of State, there is no over-taxation. In reality, this criterion is unsound, because the same percentage in one country might leave over an abundance of superfluities, in another might encroach upon necessities. It is not then income simply that is the proper object of taxation, but what may be called superfluous or surplus income, namely, what is available after absolute and conventional necessities have been satisfied; and the greater this surplus income the greater the taxable capacity of the country".

The only weak point in this definition of Mr. Devas

¹ *Political Economy* (Longmans, Green & Co.), 3rd edition; pp. 530-3.

is the difficulty of determining what are "conventional necessities". This difficulty has been removed in an indirect manner, however, by Marshall, who has observed that the conventional necessities¹ are those to obtain which "the average man and woman will sacrifice some things which are necessary for efficiency". In other words, although it is only the absolute necessities which are really essential to health and efficiency, people have so great a desire for certain conventional ways of living, which are customary in their station of life, and often also pleasant at the moment of consumption, that they will forego some of the absolute necessities rather than the conventional necessities, thereby causing some injury to their health and efficiency. Hence an income which is not sufficient to provide a family with the conventional as well as the absolute necessities will tend to keep the working members of the family below the level of normal efficiency—that is to say, the most common standard of efficiency amongst healthy persons in the country at the time. The question whether it is possible to measure the efficiency of the workers of a population and discover whether there is any falling off as a result of taxation does not necessarily arise. The principle of limiting the total taxation so that, if evenly distributed according to the ability to pay, it will not lower the efficiency of workers, gives us a theoretical limit to the taxable capacity which is theoretically sound, because if the taxation were further increased there would be an actual diminution of social income.

We thus see that the taxable capacity of a community means the extent to which the total social income can be diverted by the force of the law into the coffers of the Government without reducing the

¹ Principles of Economics, BK. II., Ch., III., §4.

consumption of the necessities of life, absolute and conventional, to such an extent as to impair the efficiency of the people as workers. The very great variation of wants as between different persons makes it, of course, impossible to arrive at any precise measure or even a really precise definition of taxable capacity. Many persons, for example, will even reduce their consumption of the necessities of life below what is requisite for efficiency rather than entirely forego luxuries; and again, a very great difference exists between different people as to the degree of efficiency obtainable by distributing the expenditure of their available income on necessities. The income which would serve to keep one family fully efficient may be insufficient for another family of equal size, simply owing to the unwise distribution of expenditure made by the latter.

In economic ideas of this class it is necessary to deal with average results, taking the human beings of the community in the mass. By doing this we are really taking short cuts in the analysis of the effects of legal measures upon the people, and it must not be forgotten that a complete analysis will demand an enquiry into the habits of various classes of individuals. For my present purpose, however, it is sufficient to deal with broad general averages, and to give only an occasional or incidental indication of effects upon the different classes of the population.

A practicable method of estimating the taxable capacity of any population may be sought by some further analysis of social income. The people may be regarded as divided into two classes: (1) Government servants of the civil and military services whose salaries are paid out of the taxes and land revenue and rents received by Government (to whom the term Government servants will be confined here); (2) the rest of the population, including all Government employees in

the commercial services—that is, those branches of the administration which render special services to individuals for which a measured charge is made. The second class—the general public—expend the social income in four great groups of payments: (1) purchases of absolute and conventional necessities; (2) The taxes, revenues, and rents, a part of which is used to maintain the whole body of Government servants; (3) Investments in capital goods of all kinds for productive purposes; (4) Purchases of superfluities and luxuries. For brevity, group (1) will be denoted *necessaries*, implying those which are both absolute and conventional; group (2) will be denoted *taxes*, the word including land revenue, rents, fees and royalties; group (3) will be denoted *investments*, whether the investment be in a company, or any stock exchange security, or in any form of private business, loan or deposit; and group (4) will be denoted *superfluities*, implying also luxuries.

It may be assumed that the public expenditure of Government is entirely devoted to necessities and capital goods for productive purposes, and that no part of it is devoted to purchasing those commodities which are superfluities for the great mass of the population. On the other hand part of the private expenditure of Government officers out of their salaries is devoted to superfluities, and forms a part of the whole social expenditure on superfluities.

The taxable capacity of the people consists, therefore, of the part of the social income of the public which actually pays the taxes, together with that part which is spent on superfluities. The part of the income of Government servants which is spent on superfluities should be added so as to ascertain the taxable capacity of the entire population. The taxes paid by Government servants might also be added, except that, when of

long standing, they merely represent a paper transaction, as they did not affect the real price at which Government could hire services. A full discussion of the economic position of the taxes paid by Government servants would be lengthy and unprofitable for my present purpose; but if the full salaries paid them are included in the social income, obviously the whole of the taxes paid by them must be included in any numerical estimate of the taxable capacity; and this will usually be the most convenient plan.

It is necessary next to consider the taxable capacity of different classes of the population separately. For this purpose it is convenient to coin a new technical phrase—*minimum social expenditure* which means that portion of the social income which is expended on necessaries, absolute and conventional, and is, therefore, the minimum expenditure on which society can exist. It will be observed that the minimum social expenditure plus the taxable capacity of any community are equal to its social income. Society as a whole is composed of many classes having different average incomes. The social income of the class is the sum of the net incomes of all the persons in that class; and the social income of the whole population is the sum of the social incomes of all the classes into which it may be divided taken separately.

Each class of the community has its own minimum social expenditure and its own taxable capacity. For each class, and also in comparing each class with others, we notice that minimum social expenditure increases as social income increases, but usually not so fast, so that taxable capacity increases faster than minimum social expenditure. The same relation is seen when we compare the whole populations of different countries. Minimum social expenditure is probably highest per head of population in

the United States, next in England, very much lower in Russia and China, and lowest probably amongst civilized countries in parts of India. The social income and the taxable capacity of these countries are probably in nearly the same proportion.

The different classes of the community each have their own taxable capacity ; but they are also to a great extent earning or enjoying incomes of different origin, and their habits, and consequently the commodities on which the minimum social expenditure is spent, differ. All this ought to be taken into account in devising the tax system, so as to lay the burden equally on all classes by taking the same percentage of the taxable capacity *per capita*, when the taxable capacity *per capita* is equal. The greater the taxable capacity *per capita* the greater should be the percentage taken. In other words taxation should be progressive, but based on the surplus income above the minimum needed to maintain the conventional standard of life, and not on the whole income. In India a class of artisan traders whose average income is Rs.1,200 per annum has a much higher taxable capacity than college educated clerks whose average income is the same, because the former can live for Rs.40 per month, the latter for not less than Rs.80. This is a question which we need not follow further. It has only been introduced to show the extreme difficulty, not to say impossibility, of devising any system of taxation such as could absorb the whole taxable capacity of the people. Before this limit was reached for all classes, some would inevitably be taxed beyond it. Consequently any system of taxation which endeavored to obtain more than 75 or 80 per cent of the theoretical taxable capacity would be likely to be oppressive.

The actual estimation of the taxable capacity of the population inhabiting any territory must be made

upon a statistical basis, and two distinct methods are available. The first and most direct method is to estimate the existing social income and then ascertain by an examination of family budgets of different classes the average *per capita* expenditure on necessaries. Multiplying the latter by the numbers of each class, as given in the census or other statistics, we obtain the minimum social expenditure for the whole community. On subtracting this from the social income we have the taxable capacity—the theoretical figure, that is, of which in practice not more than 80 per cent could be taken. A variant of this method would be to calculate the total value of necessaries produced in the country, so as to derive therefrom, after correction for exports and imports, the total expenditure of the population on necessaries, which would then be subtracted from the estimated social income. This method could only be applied in countries which have a detailed census of production. The second method is to estimate directly the total expenditure of the population on superfluities and on investment, and to add the present Government revenue, less what Government servants may be estimated to be spending on superfluities, as this is included in the total expenditure of the population thereon. To do this thoroughly would need again a census of production; but in the case of India the proportion of such goods imported is so large that the import statistics may furnish a useful guide. The net balance of foods exported, and all raw products exported, must be surplus produce not required for subsistence by the people; and the character of the imports which come in exchange for them shows how this surplus income is expended. This method will at least provide a check on the first method.

Some confusion of ideas might arise from the use of the term *minimum of subsistence* or *subsistence mini-*

num in relation to taxable capacity, and consequently I have avoided using it, and have used the term *minimum social expenditure*. The subsistence minimum implies the least income on which people can keep alive, and it would be a serious error to regard all the remaining income as the measure of taxable capacity. It is true that heavy taxation in excess of the taxable capacity may be imposed and maintained for a short period, say five or six years; but such overtaxation tends to exhaust the sources from which it is drawn and cannot, therefore, be maintained.

5. *Results to be gained from Increased Taxation.*—

In the foregoing section I have alluded briefly to the effects of heavy taxation amounting to overtaxation. For the purpose of understanding the relation of taxation to economic development it is more important, however, to consider carefully the effects of increasing existing taxation by moderate amounts, as this will almost inevitably be necessary in the first stage of the development of any country.

Any increase of taxation obviously reduces immediately the *real* income of which the individual can dispose, assuming his money income to remain unchanged; but the effects of taxation in reduction of income and of taxation based on commodities are different. Taxes in reduction of income, which are mostly direct taxes, are either assessed upon the whole income, or upon incomes from particular sources, or both. The income tax is the most important of this class, other examples being a land tax on rents, inheritance taxes on estates (which by diminishing the capital remove a portion of the income from the heir), and certain taxes on business and profits. In every such case the effect of the reduction of income caused by the increased tax is to compel a readjust-

ment of the individual's expenditure. The theory of utility teaches that every person tends to distribute his expenditure on every form of outlay so that he gets equal marginal utility (or efficiency) in each direction of outlay. When the individual's income is forcibly reduced he will curtail to the greatest extent expenditure on those commodities or forms of enjoyment for which the marginal utility functions (utility curves) are most elastic; and he will soon arrive at a new equilibrium of his monthly or annual outlay in which equal marginal efficiency in every direction of outlay is again realized with the smaller income. In this case the State has simply taken some of the man's income, but has done nothing which will concentrate the reduction of expenditure on one or more particular commodities rather than others. The man is left to cut out those superfluities which are of the least marginal significance to him. The result is different when increased taxation involves taxes based on commodities, either new taxes, or the increase of existing taxes of this class. Taxes on commodities are almost invariably indirect, being shifted to the consumer with some increase or decrease of his loss. Taxes on services are sometimes direct, *e.g.*, carriage licences, or taxes on household servants. Whether direct or indirect the effect of a tax on a commodity is to cause a loss of income to a consumer proportional to his consumption of the commodity, through its price being raised. In accordance with the principle of the distribution of expenditure according to equal marginal efficiency his outlay on the taxed commodities will be reduced in accordance with the elasticity of his utility curve for the commodity in question, and the extent of the rise of price. Some direct taxes, such as house-taxes based on annual value, or the old window and hearth taxes of England, are assessed on

a particular article of consumption, and thus by raising the price restrict the net expenditure on it, *i.e.*, the expenditure excluding the tax, more than they restrict expenditure on other commodities. That, indeed, is the general effect of taxes on consumption—they curtail the expenditure on the particular article taxed; but as the total outlay on the taxed article including the tax usually increases, there is a reduction of the income available for expenditure on other commodities, and the expenditure is contracted in all directions so as to maintain equal marginal utility.

To complete this brief analysis of the effects of increased taxation on the individual's distribution of his expenditure, we must notice that saving for investment, with a view to obtaining a future income or capital sum is an important direction of expenditure, the present marginal efficiency of which is determined by his estimate of his future needs, his intensity of care for the future, and the rate of interest to be obtained. Likewise the marginal efficiency of expenditure on the education of children is determined by anticipation of their needs, the intensity of the sense of parental duty, and so forth.

It is unnecessary to consider further the primary effects of increased taxes on individuals. We may now enquire what the social results will be; estimating at the same time, so far as possible, under what conditions, and how far, the individual may be actually benefited, remain unaffected, or even suffer by the social results. These latter are of two sharply contrasted kinds: (i) those social results which are consciously sought by the Government or other organizations of the community; and (ii) those which occur unconsciously and spontaneously as the result of the tax, and are termed secondary reactions.¹ The first class, the

¹ S. J. Chapman, *Outlines of Political Economy* (Longmans), 2nd edition, p. 400.

consciously sought results, are of at least two kinds: (1) the primary reactions of the tax itself—as the decrease of consumption of alcohol due to an increase of tax; and (2) those due firstly (*a*) to changes of the environment of the population brought about by the expenditure of the money raised by the taxation upon providing public works, sanitation, garden city building, etc., and indirectly by education, which facilitates these improvements; and secondly (*b*) subjective changes which enable people more fully to assist one another and to benefit by and enjoy their improved environment. The subjective changes require moral and æsthetic education.

It is impossible for me to deal with all the results which may flow from increased taxation, especially when rightly used for the benefit of the people taxed; and I shall, therefore, confine myself to a few general observations, which will relate more particularly to subsection (i)(2)(*a*) of the above classification of the social results, that is to say, to the relation of the beneficial effects of judicious expenditure of increased taxation to the loss suffered by the taxpayers. It is necessary, as a further preliminary, to consider the form of government in relation to the control of public expenditure.

There are two extreme types of government of which all existing governments may be regarded as modifications and admixtures: the *autocratic* and the *democratic*. The *autocratic* type I take to include what is generally denoted *beaurocratic* government, and in its perfect form its distinguishing feature is that the wishes of the subjects are not in the least consulted. They may be ill or well governed. Oppression does not necessarily go with this type of government. It is simply characterized by the fact that the people have no voice, intended or actual, in the regulation

of any public affairs or their own welfare, so far as it is affected by the general environment. They have simply to accept and submit. The essence of this type of government is the regulation of everything by external control; and as it may apply quite as much in local and municipal affairs as in the national sphere, it will be convenient to denote it *government by control*. We may note that this type of government appears to be necessary to secure efficiency in all unitary producing organizations, such as factories, works, mines, etc.

The *democratic* type of government on the other hand is that in which the organ of government acts wholly in accordance with the wishes of the people as expressed by whatever means may be available or arranged. The usual mode of expression is by the election of representatives whose votes in a parliament or assembly reflect approximately the wishes of the people at large. Devices such as proportional representation, the initiative and the referendum are designed to assist the expression of the popular will. The essential distinction however, of the two types of government, from my present point of view, does not lie in the organization of the government. An autocratic potentate who should decide henceforth to govern only in complete accord with the wishes of his people, allowing freedom of expression of opinion by the press and otherwise, and holding searching inquiries, special conferences, etc., might govern in a manner completely democratic in spirit without the characteristic organization of this type.

Government by control may be very bad and it may be very good—perhaps the best form of government. A king or personal ruler may use the revenues of the state to maintain an extravagant court, numerous favorites holding sinecure offices, and a long list of

pensioners. He may waste the resources of the state in initiating futile wars, and in continually maintaining a large military force. So much of the state revenues as is absorbed by expenditure on these purposes is pure loss to the people. State money spent in the maintenance of order and provision of justice, on the other hand, yields its return to the people many times over; and so with the other usual and recognized services of government. If the controlling government proceeds to provide a good currency, easy communications, efficient and general education, sanitation, and so forth, it provides great benefits for the people. Any increase of taxation which is used to provide advantages for the people is not a burden on them but a benefit. A clear distinction must be drawn, however, between the kinds of expenditure which return an immediate or almost immediate benefit to offset the burden of the tax, such as expenditure on sanitation and medical attendance, and those of which the full benefit only accrues after many years, such as large public works, and general education. A controlling government may be benevolent, *i.e.*, well intentioned towards the people, and ignorant, negligent or foolish, in which case its good intentions are of no benefit to its subjects; but if it combine wisdom and efficiency with benevolence it can hardly fail to be of the utmost advantage to the people. The question then arises whether a controlling government can become wise and efficient; and if so how. Experience has shown that a controlling government, though subject to many malignant influences, can be both wise and efficient. The question of how it is to acquire and retain these characteristics is one which may be considered in a subsequent section.

The democratic or popular government is totally different in its relation to the welfare of the people,

It is merely the supreme executive organ of the people themselves, and exists solely to carry out their will. Consequently the public expenditure is ordered and arranged as the people desire and the burden of taxation is self-imposed with a view to obtaining the benefits of the communal expenditure. The public expenditure, whether of the state or of local authorities, thus obeys the same laws as the expenditure of individuals. The only difference is that public expenditure is ordered by the majority of electors for the time being, the majority often being composed of different persons for each kind of expenditure. Consequently it is the average ratio of the marginal utility of the benefit of public expenditure to the marginal disutility of its cost in taxation for the majority for the time being, which is in equilibrium with the average ratios of marginal utility to cost of the persons composing this majority for all their various kinds of private expenditure. All persons derive some benefit from almost every kind of public expenditure, but a favorable vote of *any majority* decides the marginal expenditure of the community.

We have arrived then at the important conclusion that in a perfect democracy there is a marginal equilibrium maintained between public and private expenditure precisely analogous to the equilibrium between a person's expenditure in different directions. There are certain wants which all persons of a certain town have in common, such, for example, as for roads with good surface, and for street lamps to light them at night, for drains, for schools, and so forth. People cannot supply these wants individually, as the cost in proportion to their marginal utility would be far too high. When supplied by communal organization, however, the cost is so much reduced that its ratio to the marginal utility of such expenditure is lower than the

ratio for many forms of private expenditure. Consequently people willingly tax themselves to enable government or a municipality to satisfy such wants. At any time, therefore, in a perfect democracy the number, kind and intensity of the wants of the kind to be satisfied communally relatively to the number and average marginal intensity of the wants to be satisfied privately determines the extent to which people tax themselves. This economic analysis shows that in a democratically governed state the system of predetermined expenditure, *i.e.*, the second system of finance outlined above, is adopted as a result of the balance between wants most easily satisfied by communal effort and those most advantageously satisfied by private action.

The control of expenditure is a serious weakness of the democratic system of government, precisely because expenditure is made entirely in accordance with the wishes of the people. The action of the government reflects at any one time the wants and ideas of the people. The government may be better informed than the people, it may be more far-seeing; but it cannot act in opposition to their wishes, or the government in power will be replaced by another: consequently it acts with only the average intelligence and foresight of the people as a whole. The great majority of people have difficulty in managing their own private affairs satisfactorily, and the working classes, who must form the majority of voters in any truly democratic community, often display decided want of foresight. It is no matter for surprise, therefore, if a popular government displays little foresight, and tends rather to expend money on the immediate needs of the community. Such an attitude is necessarily fatal to the interest of the future economic development of the country. What is needed is the preparation of a consistent program of development the realization of which will take twenty years or more.

It is highly important that every democratically governed community should realize its inevitable weakness in this respect; because it is possible to get over it in two ways. The first, and least likely to be successful, is for the whole community to become familiarized with the principles underlying economic development, so that they come thoroughly to understand the need for careful planning and expenditure years in advance of the realization of benefits, and also learn the necessity of subordinating purely local interests to the achievement of ultimate general efficiency. As an illustration of this last point I may instance the common experience in Australia and America where great pressure is brought to bear on the State Government perhaps through the local legislature, to get a particular bridge or branch railway constructed. This may be supplied without regard to future developments which it may rather retard than assist. In India a mistake has been made in handing over the control of making new roads and light railways to District Boards, thereby encouraging the satisfaction of immediate local interests at the expense of delaying the general benefit of the community which would flow from plans centrally initiated and controlled. To educate the whole community to a sufficient understanding of the principles of economic development for them to be able to control it directly through their elected representatives is a happy ideal which it would be pleasant to see realized. Then every citizen would be discussing the plans for this and that series of new roads and feeder railways, or electric car lines, and the realization of these plans in the future would have a high degree of present marginal utility, so that the people would willingly bear additional taxation to provide the necessary preliminary expenditure and the interest on wait-

ing for the works to come to financial maturity. I do not say that it is impossible to educate the public to a full understanding of the principles of economic development; but it must, in any country, be a slow and lengthy process, needing a campaign of propaganda lectures and literature extending over very many years.

The second way of overcoming the weakness of popular government in regard to economic development is to convince the people and their representatives not only that scientific development by means of an ordered program is enormously important, but also that it is an inherently complex and difficult business—that it needs experts to devise a program, make the necessary comprehensive plans, and arrange the finance, and that the layman cannot hope to understand it all and had better entrust the future of his country in this respect to a body of experts. Having once carefully appointed their body of experts, the popular representatives should be prepared to allot them a sufficient part of the revenues of the state, and the right of raising loans thereon, to enable them to carry out a consistent policy of development, or control the carrying of it out by the executive departments of the government.

In the case of a controlling government the matter is simpler. It has already the power and practice of disposing of the revenues of the country according to its own best judgment; and if such a government learn the principles of economic development and the immense advantages of applying them, it can easily appoint its body of experts for the purpose. A controlling government, beaucroatic or autocratic, is perhaps better situated in regard to securing the economic development of a country than any democratic government is likely to be. It can regard the economic development of its wide territories as a business proposition, just as a landlord may regard the development of his estates.

Assuming that a body of experts is put in control we are now easily able to summarise the results which may flow from increased taxation when its proceeds are used for economic development. We may assume, too, that the body of experts which would be given full control of public works and other directly economic measures, is also at least consulted about, if not in charge of, the reforms of housing and sanitation, so that its purview extends to the whole of the changes of the material environment. At any rate the advice of the development experts should be sought as regards the finance of all such improvements. For the purposes of economic development we may then classify the expenditure required for all changes of the material environment in the following manner:—

(1) That which has a directly pleasing effect, as, for example, expenditure on improved street lighting, fine city streets, new parks and public buildings. This brings an immediate return for the increased taxation in the form of direct enjoyment.

(2) Expenditure which is productive of health, and thus of enjoyment, and of efficiency in economic production, as, for example, sanitation and garden city housing. The necessary increase of taxation here brings a gradual, but not long delayed, return which is ever accumulating at greater and greater rate as the sanitary measures become more and more complete.

(3) Expenditure which is economically immediately productive, as for example certain new roads and railways. Here there is an immediate economic return.

(4) Expenditure which will be economically productive after some years have passed, as certain railways, bridges, docks, irrigation works, and so forth. In this case there is no immediate return, but it may be confidently expected to grow, and to con-

tinue growing for many years, becoming amply remunerative after time has elapsed for the necessary economic readjustments to take place.

(5) Expenditure which is economically productive with slow cumulative effect; as, for example, expenditure on education, on improved land tenure, or on agricultural instruction. In this case the return is delayed, but it gradually becomes very great indeed.

It remains finally to consider the effect of increased taxation expended in the ways outlined above on the taxable capacity. It may be taken for granted that no democratically governed community is likely to tax itself to as much as one-half or even one-third of the taxable capacity, except for war, because it has not a sufficiently vivid appreciation of the social advantages of such expenditure as matures for the benefit of the future to sacrifice a great part of its present enjoyment of superfluities for this object. Although with good finance, the real present sacrifice involved in anticipation of benefits is very small, expenditure on public works, education, and so forth, does not appeal to the imagination until a reform campaign has made them a matter of politics. In most European countries before the war, the taxation was probably not more than one-fourth to one-third of the taxable capacity, except perhaps in Italy. Consequently there was much opening for increased taxation, as the war has clearly proved, even making allowance for the depreciation of money.

We must take separately each of the five classes of public expenditure outlined above in order to estimate the effect of such expenditure on the taxable capacity. Expenditure of the first class, having a directly pleasing effect, will do little or nothing to increase the social income and consequently little or nothing to increase the taxable capacity; but it is probable that such expenditure will make people willing to tax them-

selves, or be taxed, to a higher percentage of the taxable capacity, because the satisfaction they immediately get from the increased taxation will for most people be greater than the enjoyment lost of the superfluities they would have to forego. For almost all people there would be at least a considerable compensatory effect.

Expenditure of the remaining four classes all tends sooner or later to increase the taxable capacity, in many cases to a very considerable extent. Let us take them separately. Expenditure for health and happiness in the surroundings of life (class no. 2), such as sanitation and better housing, produces greatly increased efficiency in mental as well as physical work, and thus in the course of a few years increases the taxable capacity by two or three hundred per cent more than the increased taxation necessary to pay for the sanitation, or the inevitable cost to the state of the better housing for the working classes. The third class—expenditure which is immediately economically productive—obviously increases the taxable capacity immediately, and the finance minister has only to consider how the additional taxation necessary is to be assessed so that it is paid as far as possible by those persons who reap a particular benefit from the expenditure. Even if they cannot be distinguished and reached by a special tax, the expenditure remains beneficial, and may be met by an increase of general revenues. This is particularly justified if benefits from this class of expenditure are constantly being given to different classes of the population and different localities. Expenditure of the fourth class, such as that on most of the larger kinds of public works, and all such as requires many years to reach its full economic productivity, combines with expenditure of the fifth class, like education, in having a characteristic effect on taxable capacity. For the first few

years the expenditure which necessitates increased taxation, either to pay the interest and sinking fund on its cost, in the case of a public work, or for its initial recurring expenditure, as in the case of education, is not counterbalanced by any increase of taxable capacity. Such increase only arises slowly through the growth of the indirect revenue of the public work, or from the increase of the general productive efficiency of the people, in the case of education. But the growth of taxable capacity due to such expenditure, although it begins slowly, continues to grow at an ever, increasing rate—by compound interest so to speak—for half a century or more. The increase of taxable capacity continues to grow by economic actions and reactions at a greater rate when a number of such measures have been taken and are coming to fruition at the same time. If it were possible to single out the increase of taxable capacity due to any one public work or educational measure conceived and executed with normal wisdom and success, it would almost certainly be found that such increase after forty or fifty years would be equal to a very high percentage on the initial capital cost—anything from fifty to one or two hundred per cent per annum. A certain railway, or irrigation canal, may easily, after thirty years, repay its cost every year in increase of taxable capacity. Of course but a small fraction of such increase of taxable capacity is usually taken by the tax system. The people are able to enjoy more superfluities, which in their turn become conventional necessities; and they are also able to save and invest more, which again increases social income and so also still further augments the taxable capacity. If we were to reckon the future return in taxable capacity resulting from expenditure on education, taking as initial expenditure, say, the total of recurring expenditure during a period of three years—even

supposing the education not of the most efficient kind—we should probably find that thirty years later the increase of taxable capacity which could be imputed (were it possible to trace it separately) to this expenditure on education would be equal to the whole three years' expenditure. This means a return, after long delay, of 300 per cent per annum, if we regard expenditure on education as capital outlay.

The results suggested by these examples are not, I think, exaggerated if we assume that the different measures are moderately well co-ordinated. Why then, it may be asked, is not every people of the earth progressing in wealth and taxable capacity at a speed which would make us all immeasurably better off within a single generation? Progress is, indeed, very rapid in some countries, but in none so great as the figures I have given would suggest is possible. The reason is two-fold—partly due to ignorance of the enormous possibilities of such outlay, together with wastefulness due to unco-ordinated and ill-conceived efforts, and partly due to the fact that capital has to be invested and a burden of expense incurred whilst waiting for the return. By means of public loans the burden of the cost of any great work is spread over its anticipated life, but the annual charge for interest and sinking fund is itself a burden which has to be met for many years by means of taxation, though each year the burden becomes smaller, because the balance not realized by direct or indirect revenue decreases. Every scheme for a new public work, or for any reform of an educational or social kind, will mean putting a burden on the tax-payers in advance of the benefit which will later accrue in the form of increased taxable capacity. It is evident, therefore, that the number of such new schemes which can be taken up at any one time is limited by the existing

margin of taxable capacity which is not already taxed, and the extent to which the people's wishes, or political considerations, allow this margin to be trenched on for the support of the annual charge of these new schemes in their infancy. Herein lies the importance of the relation of taxable capacity to economic development. The greater its unused margin the greater the opportunity of putting in hand schemes and reforms of that numerous class which take time to mature their benefits. In a democratic community the people at large need to be educated to understand this relationship, and to be willing to make some present sacrifice for the certain future prosperity of their country. In a country governed by control, if the taxation be not already heavy and wastefully used, the government may without misgiving proceed with a reasonable program of works and measures involving from year to year a gradual increase of taxation, which should be as widely distributed as possible; indeed it is the duty of a controlling government to proceed, because no other authority in the state can take the necessary measures, involving as they do legislation and the use of the administrative machinery and credit of the state.

A controlling government will do well, however, to take all possible steps to inform the public of what it is doing and why. If the public be taken into the government's confidence and realize that the necessary increase of taxation is not made for any wasteful purpose or through bad management, but for their own future good, much covert opposition will be removed and the necessary public loans will be better subscribed.

(To be continued.)

AN AUSTRALIAN IRRIGATION SCHEME

COMPILED FROM OFFICIAL SOURCES

Although it may be said that India was the pioneer of canal irrigation engineered upon a large scale, and she still has a larger area under such irrigation than any other country in the world, it does not follow that she has nothing to learn from the experiments and selected methods of other countries, such as Italy and the United States, which have in recent years greatly extended their canal irrigated areas. The conditions both of climate and of the cultivating population are in many ways different; but it is at least worth while to be acquainted with what is being done elsewhere. We believe that little attention has yet been paid in India to the new canal irrigation schemes of Australia; and we hope that the following description of one of the most important of them which we have collated from official documents of the New South Wales Government will prove of interest.

The great Australian project, known as the "Murrumbidgee Irrigation Scheme," because the water is derived from the river of that name, is designed to utilize the flood waters which are impounded by a large dam. The augmented ordinary flow passes

from the dam down the river channel for 220 miles and is then diverted into the main canal at the Berembéd Weir. After about 40 miles the main canal reaches the irrigated area and begins to divide into minor canals and distributaries which will supply water to nearly 300,000 acres. This national enterprise provides almost ideal conditions of settlement: excellent land at reasonable rates, a cheap and assured water supply, a perpetual leasehold tenure, and credit facilities with easy terms of repayment of loans; also State encouragement and instruction of the most liberal and practical character.

The Murrumbidgee River is one of the great tributaries flowing into the right bank of the Murray River, which divides Victoria from New South Wales. The Murrumbidgee rises on the western side of the coastal mountain range and leaving the hills flows westwards, that is inland, entirely within New South Wales, for hundreds of miles across the dry alluvial plains. In many features it is similar in physical and climatic features to the Chambal and Sone Rivers, and if we imagined these and not the perennial snowfed rivers, flowing across the arid plains of the Punjab, we should have a fairly close parallel to the natural conditions of the great plains of eastern Australia. The map inserted opposite this page shows clearly the Murrumbidgee River and the precise location of the dam and the irrigated colony.

The inception of the scheme dates back to the Report of the Royal Commission on water conservation which concluded its labors in 1887, and suggested amongst other proposals the canalisation of the Murrumbidgee River to irrigate the arid lands of its lower valley. The preliminary work of surveys and investigations of various alternative schemes occupied many years, and the construction of the canal on the

north side of the river was sanctioned by the New South Wales Parliament in 1904. The settlement of the new colony began ten years later, and in 1915 the great dam was completed. This is the first great irrigation project to be carried out in New South Wales and the preliminary work has been of a strictly scientific character, even the most minute details of the scheme having received careful consideration after the closest investigation.

Storage Reservoir

The ideal condition for economical storage, namely the existence of a narrow rocky gorge below an area of extensive river flats, having a large catchment area, was found to be realized at a point named Burrinjuck, just below the confluence of the Goodradigbee River with the Murrumbidgee. The watershed of the river, situated above the town of Gundagai, is made up of a magnificent expanse of rugged gorges and mountain peaks, embracing an area of 8,000 square miles, rising to altitudes ranging from 2,000 to 5,000 feet, while the average rainfall in the area varies from 20 to 70 inches. The open river flats above Burrinjuck are sufficient to provide a storage capable of regulating the flow of a catchment area of 5,000 sq. miles. This regulated flow will be utilized to supplement the natural flow coming from the lower catchment area of 3,000 sq. miles, formed by the Murrumbidgee and its affluent the Tumut. The actual site of the dam is a deep gorge, across which a great concrete wall has been constructed, having a maximum height of 240 feet, a length of 752 feet, with a base 160 feet thick tapering to 18 feet at the top. This will throw the waters back into a lake having an area of 12,740 acres, with capacity to contain 33,000,000,000 cubic feet, or 766,324

acre feet, *i.e.*, enough water to cover that area to a depth of one foot.

When liberated the waters from the Burrinjuck dam follow the natural channel of the Murrumbidgee for a distance of 220 miles to Berembé, where a diversion weir, consisting of collapsible shutters, has been placed to turn the water into a canal to conduct the water to the area to be irrigated. The Berembé site was chosen for the weir and head works because firstly there is here a granite bar across the river channel affording excellent foundations for the weir and facilities for controlling the canal during high floods, and secondly because it is so situated that it commands by gravitation the high class lands to be irrigated. A lock has been provided to allow of steamers passing up and down the river; and the flow of the water into the canal is controlled by a large regulator built of concrete. From Berembé the main canal runs partly through an artificially excavated channel, 50 feet wide on the bed, with 2 to 1 slopes, 7 feet depth of flow and a fall of 9 inches to the mile, and partly through a natural creek, until the irrigable area is reached. Thence diverge a series of main distributaries and minor subsidiary channels which convey supplies of water to each separate holding. This net-work of canals, as also the main canal, is at convenient places controlled by a series of regulators and escapes and is supplied with sluice-gates, culverts and road crossings. The escapes are meant to dispose of surplus water through natural drainage channels, so that the overflow may cause no damage, while provision has also been made for drains to carry away water left after irrigation needs have been satisfied.

The construction of this great scheme is an achievement from the engineering point of view. The

great reservoir wall is one of the big dams of the world both in regard to its height and the volume of water impounded by it. It is constructed of cyclopean concrete, i.e., cement concrete work with large stones up to 15 tons in weight, imbedded in it, and it has absorbed over 50,000 tons of cement. The concrete is divided into **L** and **T**-shaped units, each the result of one day's work, which fit into one another so as to break-joint in every direction. This gigantic form of masonry construction required a special plant for the purpose. Three cableways or suspension ropes, slightly less than a quarter of a mile in span, were utilized to convey concrete and large stones, and to handle the moving plant on the wall; a power house was built to generate electricity for driving the machinery, and a narrow gauge railway line was constructed to connect the main southern line with the site of the dam. The whole of the plant and cement required for the construction work was supplied by Government, and the very uncertain and risky task of laying the foundations was also undertaken directly by the State; but tenders were afterwards invited for the completion of the work.

Character of the Land

The irrigable area, shown by shaded lines in the map, is the one ultimately selected, and it has the following advantages: (a) The soil is of the highest quality and suitability for irrigated agriculture, (b) The area is concentrated, thus minimising the loss by evaporation of surface water, (c) It is so situated that the water is easily supplied by gravitation and the losses by percolation are reduced to a minimum, (d) The land is situated at the base of foot-hills, and is in most parts well timbered.

The soil is loamy and well drained and is of extremely fertile and varied character. The average rainfall is about 16 inches, of which seven inches fall in the winter months from May to August. The climate is both temperate and bracing and the summer heat is neither trying nor enervating. There is a marked absence of epidemics, stock diseases and fruit pests. Plant growth is vigorous and continuous and fruits thrive wonderfully. Assisted by a cheap, certain and permanent supply of water the irrigable areas are capable of being intensively cultivated and producing abundantly and profitably all manner of crops. As the official report puts it: "it will be difficult to mention any crop which the Murrumbidgee lands do not produce". All fodder crops, especially lucerne (alfalfa), which is coming to be recognised as the most valuable fodder crop in the world, grow luxuriantly. There are great opportunities for fruit growing, mixed farming and dairy industries, for lamb and pig raising, wool growing, and even for ostrich farming. The climatic conditions are stated to be ideal from the agricultural and health-giving point of view, and farms are being settled at a fairly rapid pace. From July 1912, the date of the first subdivision, to 31st December 1914, more than 800 farms had been allotted, and were in actual occupation, representing a total area of 36,000 acres, the settlers having a declared capital of £447,000, or Rs. 67-lakhs. But as yet only a fraction of the lands comprised in the complete scheme have been taken up, for by an Act of Parliament the Government of New South Wales has acquired the right to purchase 1,340,000 acres (2,100 sq. miles) at reasonable rates, of which only 300,000 acres has as yet been so purchased. To attract settlers, the Government has offered various facilities, for Australia's greatest need

is men and yet more men, and the State is ever willing to help them by supplying water, money, encouragement and instruction.

Types of farms

Farms on the irrigable areas are of varying sizes from 2 to 200 acres. The smaller farms from 2 to 15 acres are designed to meet the requirements of the vegetable grower, the small orchardist, the farm laborer, and in some cases, the business man of an adjoining town. Each acre of irrigable land has a permanent "water-right" attached to it. The great bulk of the farms range from 30 to 50 acres in size, with permanent water-rights. The larger farms of 200 acres, suitable for dairy and mixed farming, include areas up to 80 acres with water-rights attached. A water-right is defined as one acre-foot—that is, a depth of one foot of water over one acre, to be supplied during the irrigating season; and one such water-right is attached to each acre of irrigable land disposed of. Further volumes, if required, may be sold to the landholder under agreement. The charge for water is 5 shillings (Rs. 3-12) per acre-foot, no distinction being made as regards the character of the crop watered. This charge is reduced by half for the first year, increasing yearly by 6d. (As. 6) per acre-foot to the maximum charge, 5s. These charges for water will cover all the requirements of the settler, both for stock, domestic, and irrigation purposes. It is claimed that they represent one of the cheapest supplies in the world. We may note that the prevailing charge on the great canals of the United Provinces is Rs. 4 per acre for all *rabi* crops and Rs. 2 per acre for *kharif* crops, which require less water. In India the *rabi* crops are usually given more than one foot of water during the season; but

on the other hand the cultivators have no guarantee that they will get as much as one foot.

Tenure of Farms

The farms are held on perpetual lease; but though the tenure is only leasehold, it is said to have all the advantages of freehold without the necessity for payment of purchase money. The rental is moderate, being calculated at $2\frac{1}{2}$ per cent per annum on the estimated capital value at the time the lease is executed. This rental remains unaltered for the first 25 years of occupation, but is subject to reassessment every twenty years subsequently, the value being fixed at the "actual unimproved value of the land". Hence improvements made by the settler himself are not at any time subject to assessment for rent, though they may be for local taxes; and as the rent is always calculated at only $2\frac{1}{2}$ per cent on the capital value, the State in effect divides the increment of value with the settler. Any person who has attained majority under the law can apply, except a married woman living with her husband. The only conditions are: (1) a person can hold one irrigation farm only, (2) after the first six months the settler must reside permanently on his farm, (3) the settler must pay for already existing improvements if any. To meet the convenience of intending settlers, these conditions are modified by a variety of provisions: for instance a suspension of rent payments is allowed for the first two or three years, and payments for existing improvements and repayment of loans from the State for farm purposes are spread over a number of years. After five years' residence a settler's tenant right may be transferred to another or surrendered to the State. In the latter case the Commissioner has the power to pay compensation for the market value of the tenant right if he thinks fit, as

well as for any improvements made by the tenant. A special feature of the scheme is that every settler has a statutory right to a minimum volume of water, the number of water rights or acre-feet being specified at the time of allotment of holdings. There are also, of course, certain very reasonable obligations imposed on settlers, such as spending from their own capital a certain sum per acre on permanent improvements within two or three years.

State Assistance

Not only does the State help the farmer by providing a cheap and assured supply of water, by low rentals and payments on easy terms, but it also comes forward to offer assistance, practical and liberal to the utmost degree. The settler may have his house and farm buildings erected by the State, or if he desires to do the building himself, materials may be supplied to him through State agency and financial assistance may be given to enable him to construct permanent works, and carry out grading work for irrigation purposes on his holding. The terms of repayment are exceedingly light and may be spread over ten or twelve years. Fencing posts, fruit trees and vines, lucerne and other seeds, dairy stock, pedigree bulls, machinery and implements, guaranteed true to name and quality, may be purchased or hired on easy terms. Provision has also been made for advances by the Government Savings Bank for agricultural and other legitimate purposes on the mortgage of the leasehold. The State also offers railway concessions in fares and freight to intending settlers going to inspect or settle with their families and belongings. For actual development and encouragement of industries the Government has established model factories for butter and cheese making, vegetable and fruit

canning, and bacon curing, all run on the most up-to-date lines. There are also several demonstration, experimental, and seed-testing farms; and experts of the agricultural department give advice and assistance free of cost. The railways, which are owned and controlled entirely by the State, carry settlers' produce at low rates, and the irrigation area has easy and direct access to all the important markets of Australia, and to ports for foreign shipment.

The Murrumbidgee irrigation scheme is so planned as to obviate the hardships and deprivations so commonly experienced by pioneers and settlers who venture far away and subdue the "bush" or jungle. Owing to the smallness of the majority of holdings, and the contiguity of model towns and villages, the social conditions on this irrigation colony are as nearly ideal as can be conceived. There is already a considerable and rapidly increasing population which is not only scattered over the farms but also concentrated in the towns which have been established at suitable points in the colony. Two of these towns, named Leeton and Griffith, have been planned upon a large scale on the most modern town-planning lines by Mr. Griffin of Chicago, U. S. A., who is in charge of the planning of Canberra, the new capital city of the Commonwealth of Australia. These towns and the surrounding closely settled districts will have all the usual advantages of urban life, such as good roads and sanitation, electric light and power supply, and the telephone carried right out to the farms; also well equipped primary and secondary schools. There are parks and recreation grounds, and sites for churches and places of amusement besides the commercial and shopping streets. These new towns remind us of Lyallpur and Montgomery in the Punjab canal colonies, but their planning is in some ways more scientific, a more intimate connection

with the surrounding country being assured by a system of radially arranged roads and railway branches. Throughout both the towns and irrigated farm lands the State Departments have made the utmost use of every device of modern civilization, not only for improving the efficiency of agriculture, but also for improving the social atmosphere. The farmers will reside on their own farms, but they will never be more than a very few miles from a small town, nor will they be far from one another. Numerous metalled roads will enable the produce to be marketed cheaply, and materials and commodities needed for the farming and for the life of the family can be obtained from the railway station at a small expense.

In conclusion it may be said that the scheme is a truly notable example of a colonization enterprize planned out in every detail and providing the necessary variety for every type of settler. It shows what may be achieved by the thorough co-operation of the Agricultural and Public Works Departments with the Civil and Educational Departments of the Government.

Formerly irrigation in Australia was regarded as merely an adjunct to the pastoral industry for the purpose of raising fodder crops during periods of drought, and this involved extensive local irrigation; but it gradually came to be recognized that "water in Australia was as gold, and was so to be husbanded that the utmost result was got from it". So a new policy of laying out concentrated irrigation settlements on lands most suitable for the purpose of intensive cultivation was adopted. This involves "a minimum length of channel, minimum loss of water, and concentration of holdings". The Murrumbidgee project is the outcome of this policy; and the scientific thoroughness with which the whole scheme has been carried out from the preliminary work down to the allotment of holdings

shows how solicitous the State is for the individual prosperity of the settler and for increased utilization of the natural wealth-producing potentialities of the country. It is a State enterprise pure and simple, and will be a paying proposition in the long run. The State comes forward at every turn to help and encourage settler, for the success of the settler is the success of the State. Under an enlightened and progressive policy, railways and irrigation are now looked upon as the most important forces for the quicker development of the natural resources of the country, and the areas capable of irrigation are being splendidly supplied with both. The unanimity of the political parties in Australia on this subject is a guarantee for the continuity of the present policy. Australia has a great and glorious future before her; and with the aid of modern shipping appliances to give her an easy access to the world's markets, and a continually rising demand for her products, she will, after the war, rapidly bring that future into being.

CURRENT NOTES

The outstanding events of economic interest in India since our last issue have been the Budget, the Delhi War Conference, the growing shortage of silver, and the purchase of enough to coin 43 crores of rupees from the United States, the issue of the second war loan, the coinage and issue from Bombay of Indian gold coins, and the increasing difficulties of the railways in coping with traffic, which has led to severe restrictions and to the appointment of Directors of Civil Supplies for nearly all the Provinces and Central India. During April it was necessary to raise exchange to 1s 6d in sympathy with the rise of the price of silver which appears now to have been stabilized at almost 49d in London by the contract of the United States Government with American producers. Finally, as we write, comes the issue of the Chelmsford-Montagu Report, with its important proposals for the increase of Provincial autonomy, which if carried fully into effect can hardly fail to have a stimulating effect economically as well politically.

Sir William Meyer's last Budget is remarkable not for new taxation—none being required—but for the confident anticipation of an increased yield of all the great heads of revenue in spite of the war.

Decreases are anticipated only in the cases of opium, stamps and salt, the latter because orders which were paid for in advance last year are months in arrear, and no more are to be booked for the present. The total revenue estimated in last year's Budget was 148 crores; the revised estimate for last year, based on actual figures for the greater part of the year, shows nearly 165 crores received, and the present Budget estimate is put at nearly the same figure—163½ crores. The following table compares the Budget with the Revised Estimates:—

	REVISED ESTIMATES, 1917-18			BUDGET 1918-19		
	Imperial	Provincial	Total	Imperial	Provincial	Total
	<i>Rs. lakhs</i>	<i>Rs. lakhs</i>	<i>Rs. lakhs</i>	<i>Rs. lakhs</i>	<i>Rs. lakhs</i>	<i>Rs. lakhs</i>
Revenue	114,84	50,04	164,88	111,45	52,33	163,78
Expenditure	106,28	47,28	154,56	107,58	52,13	159,71
Surplus	8,56	2,76	10,32	3,87	20	4,07

As no untoward circumstances likely adversely to affect the revenue have yet developed it seems likely that the Budget estimates will be exceeded by a substantial amount and the surplus may very likely be as great as last year. The fact is that budgetting for a year in advance is an impossibility in war time because emergency expenditure, or a sudden decline or accession of revenue may at any moment be met with. In reality the big surpluses which are shown by the accounts for the past two years and may be anticipated for the present year are more than half illusory, because the extraordinary profits of the railways arise in great measure from the suspension of a large part of the normal repairs and renewals due to difficulties of obtaining material in war time. The sur-

pluses have in fact been accumulated in London by sales of Council Bills, and are there invested, and the Finance Member states that £20,000,000 from them are reserved in London for the purchase of railway material, when markets and ships are again free.

During the past few months a pronounced scarcity of silver has arisen and there has been a heavy drain on the Paper Currency Reserve. Last January there were still 15 crores of silver in the Reserve in India, and 27 crores of gold; but in May the silver had been reduced to less than 5 crores and the gold to 22 crores, although during the latter month the total note circulation had expanded to over 105 crores. The metallic portion of the reserve in India was still above 25 per cent of the total circulation, and therefore quite satisfactory if Government felt disposed to encash notes in gold. But owing to the existing internal premium of eight to ten per cent on gold they could not do this freely, without risk of losing the whole. The gold is in fact reserved for disbursement for essential war purchases. Consequently there began in May a restriction of the encashment of notes, many treasuries and sub-treasuries being permitted to cash only comparatively small quantities for each person. Silver consequently rose to a slight premium in the bazars in several places of from one up to three per cent. Early in June Government found it necessary to instruct all post offices to make payments of money orders in notes only; but this order was cancelled in July as the arrivals of American silver in the same month, which is now being coined as rapidly as possible, have done a great deal to ease the situation, though silver remains scarce.

A dramatic turn in the currency situation has passed almost unnoticed by the public. Some months ago it was announced that a Branch of the Royal Mint would be established in Bombay to coin sovereigns from Indian gold, thereby conceding as a war measure what the British Treasury, or the Mint authorities, had consistently refused in spite of the demand by Indians, arising from national sentiment, to have gold coined in the country. On the 14th June, however, Government promulgated an ordinance to enable it to coin gold mohurs of the same weight and fineness as the sovereign. These new coins are unlimited legal tender at 15 rupees. The design on the obverse is the head of His Majesty with the legend "George V. King-Emperor"; on the reverse the words "15 Rupees, India" and the date surrounded by an ornamental border. It is intended to begin coining sovereigns in Bombay when all arrangements are made, probably in August and the important decision to issue an Indian gold coin has arisen from accidental circumstances. The silver stocks having run so low Government found it necessary to use some of their considerable stock of gold for the purchase in the Punjab of wheat for export. The necessary dies for stamping sovereigns not having been despatched from England, dies for an Indian coin which could legitimately be made in India, were prepared, and coinage was begun by melting up foreign gold coins. The coinage of gold from Indian mines will be delayed a few months until the plant for refining it can be completed.

REVIEWS OF BOOKS

RELATING TO INDIA

Life and Labour In a Deccan Village. By H. H. MANN, D.Sc., K.I.H., Principal, Agricultural College, Poona. Publications of the University of Bombay, Economic Series: No. 1. Bombay: Oxford University Press. 1917. pp. v, 177. Price Rs. 2.

In this volume, which is issued by the Bombay University as the first of an Economic Series, Dr. Mann has collected and edited the results of a comprehensive economic survey of a village in the Western Deccan, of which a short account was given in the article he contributed to Vol. I., Part 4, of the *Indian Journal of Economics*. In it the agricultural economy of an Indian village is exhibited under the microscope, as it were, so that we see a hundred details that we had never seen and had never thought of looking for before. This alone makes the work of first-rate importance to the student of rural economics in India.

The village which is described lies eight miles north-west of Poona, and five miles north-west of Kirkee. Its proximity to the former accounts for the importance of vegetables among the village crops; whilst, in the year under review, nearly one-third of the total male population of the village were employed in the ammunition factory at Kirkee. In these circumstances the economic character of the village cannot be regarded as typical; but in its agricultural character it is said to be absolutely typical of dry-land villages in the Western Deccan.

Two-fifths of the printed matter is contained in Chapter IV, which deals with the natural vegetation, crops and

cultivation. A point which seems to call for remark in the inventory given of the implements of cultivation in use is the small number of ploughs—*viz.*, 25 amongst 109 actual cultivators. This suggests either that the subdivision of the land is not in actual fact as great as it appears; or (which is, indeed, the fact) that a considerable number of those who cultivate land in this village live and keep their implements elsewhere. The number of carts (*viz.*, 20), on the other hand, is somewhat unusually large; and the village is well supplied with draught cattle. The truth is, of course, that a cart and a pair of bullocks earn a good deal for their owners, independently of agriculture, in a village situated as this is close to a big city. An exceedingly full and instructive account is given of the chief crops and their cultivation, a section being devoted to each, prefaced by a couple of introductory sections which deal, respectively, with the significant variations in the acreage under different crops over a series of years, and with the system of rotation or intermixture of crops which is followed.

The geological characteristics, the soils, the waters and the drainage of the village form the subject matter of Chapter II. In Chapter V particulars are given of the live-stock belonging to the village, the estimated value of which amounts to Rs.10,500, or an average per family of close on Rs.100. The estimated daily yield of cow and buffalo milk is 80 seers, of which sometimes as much as 60 seers is sent for sale to Poona, where it sells at 6 seers for the rupee. Carting brings in Rs.1-4 per day.

In Chapter III some interesting particulars of an historical character are given regarding land revenue assessments and village *inams*. The latter half of the chapter contains statistics showing the extraordinary degree to which the village land is subdivided into separate holdings, and the holdings broken up into separate plots. The number of separate holdings (exclusive of *inams*) at the present time is 116, giving an average of $6\frac{1}{2}$ acres per holding; while for the years 1840-1 and 1797-8, assuming the figures to be comparable, the corresponding totals were 54 holdings, averaging 14 acres each, and 28 averaging $26\frac{1}{2}$ acres, respectively. These figures are significant; but even more disquieting is the fact that, at the present time the number of separate plots is five times that of the holdings and seven times the number of actual

cultivators. The problem presented by excessive subdivision tends to some extent to solve itself; but the very device, *viz.*, sub-letting, by which to a certain extent the effects of subdivision are neutralised, increases the fragmentation of the land in the hands of the actual cultivators. There is, however, this hopeful feature in the situation, that while little can be done to put a stop to subdivision without some radical change in the Hindu laws of inheritance, fragmentation is an evil which can be remedied, and has in other countries been remedied, by less drastic legislation.

Coming now to the economic condition of the village, which is the subject of Chapter VI, the following is a summary of the results which Dr. Mann arrives at. The estimated average income per head is Rs. 44, while Rs. 43 to Rs. 44 per head is taken as the standard of necessary expenditure. The latter figure is exclusive, however, of the interest payable on debts, which amounts to the extraordinarily high figure of Rs. 5 per head, the estimated capital indebtedness per head amounting to Rs. 26. No information, unfortunately, is given of the causes of this indebtedness; nor is anything said as to how far the figures may be regarded as reliable. Including this item of expenditure, it appears that the village, as a whole, is incapable of paying its way and at the same time maintaining a decent standard of living. Eight families, however, occupy a position in which there is an average excess of Rs. 27 per head over necessary expenditure (including interest on debts); and in the case of 28 other families there is an average excess of Rs. 11 per head. The remaining 67 families (or 64 per cent of the total number) show, on the other hand, an average deficiency per head of Rs. 13. "This economic enquiry into the condition of the people of a typical dry Deccan village," Dr. Mann concludes, "is disheartening. The debts are a crushing load on the people, but even were they removed more than half the families would still not be able to pay their way."

It has already been pointed out that, economically, the village in question can by no means be regarded as typical. Waiving this point, however, there remains the question as to how far the picture given of its economic condition is a convincing one. Let us look, first, at the income side of the village balance-sheet. Accepting the method (an unsatisfactory one in the circumstances of Indian agricultural

economy) by which an estimate of the *net* cash returns from cultivation is arrived at, there are two things to note. In the first place, although these estimates are based on *average* outturn, they are reduced by roughly 16 per cent to allow for poor soil and inferior cultivation. What is more, in the year for which particulars are given, 1915-16, the amount of fallow was greater than any recorded (in the table on p. 67), this being due, it appears, to unfavourable sowing conditions. So far as one can judge, the net returns for this year, as estimated, represent certainly 10 per cent and possibly as much as 15 per cent less than those ordinarily to be expected from cultivation in this village. Whether or not the necessary correction of the figure for income from cultivation would remove the apparent insolvency of the village, it is impossible to say, but it would go some way towards it. Turning to other sources of income, it is disappointing to find that no particulars whatever are given of how the large sum under this head (Rs.13,500) is made up. We know that employment in the Kirkee ammunition factory is an important source of income; other sources are carting and the sale of milk in Poona. An estimate is made, however, of the income derived from the sale of cowdung cakes in the Poona market (Rs.600), and from fruit and babul trees (Rs.409). Turning to the expenditure side of the village balance-sheet, it would appear that the cost of food-stuffs is put extremely high. Is Rs.3-4 per maund the ordinary "net village price" for *jowar*; Rs.5-0 for pulses; and Rs.7-0 for rice and wheat? It is not sufficient answer to such a criticism to say that the village produce has been valued at the same prices, even if this were true in all cases; for less than two-fifths of the total village income comes from land. A less serious criticism is that Rs.24-8 appears to be altogether too liberal an estimate, in a budget of "necessary expenditure" (p. 134), for cooking oil and spices.

On the whole, it cannot be said that the account given of the economic condition of the village is as careful, or as complete, or as convincing, as the rest of this very interesting and valuable work.

Industrial Decline in India. By Professor BALKRISHNA. Allahabad: The Star Press, 1917. pp. 408. Price Rs. 2-8.

Professor Balkrishna advocates fiscal autonomy for India and a preferential tariff within the empire, as he believes that the free trade policy of the English nation has resulted in killing the indigenous industries of India and in impoverishing the people on account of a want of variety in their occupations.

The author looks upon the decay of industries and the decline of towns with a feeling of despair; and though he does not bring forward a constructive plan of reform in this volume, he produces data of facts mainly from the Census Reports of India to establish his contention of progressive ruralization in all the provinces of India. No one can be pleased at the phenomena of this so called ruralization; but we think Professor Balkrishna is very pessimistic in this respect. Towns can evolve but slowly, and the progress of such industries as coal, cotton, tea, jute, mineral oil, railways—a side of the picture ignored by the author—cannot in our opinion be called *an industrial decline*. The Indian mills as well as foreign competition have killed the hand-weaving industry, which was more or less specialized in certain localities and supplied the needs of a limited local market, and we cannot think of any other substantial industry having been killed by foreign competition; as a matter of fact in our opinion India was never industrially great. The note of despair that dominates the book becomes eloquent when in Chapter VI estimates regarding the average annual income of the agriculturist on the basis of the *net* yield of agricultural produce are given at the extraordinary low figure of Rs. 19 a year per head. Along with this we commend to our readers a recent calculation by Professor E. A. Horne who puts the average annual income at Rs. 42.¹ The difference is in part accounted for by the fact that Professor Balkrishna estimates the total annual *net* yield for India, after the cost of production has been deducted, at a very low figure, and estimates for his divisor, the rural population, at 90 per cent of the total population—a very improbable figure.

¹ Bengal Economic Journal, Vol. II. (1918), pt. 1, p. 89.

The style is not that of an impartial student of economic phenomena, but that of an enthusiast who wants to create an impression by rhetoric. If the author had combined an unbiassed judgment with the hard work that he presumably did, the results would have been more satisfactory. There is no doubt that there is much room for improvement in the agricultural and industrial development of this country, and the author's point of view is worthy of consideration; but we have no liking for his method of parading figures of all kinds and quoting passages from books and documents of various dates to prove the theme of his sermon "Poverty perpetuated". A patient selection of passages without reference to their context or reliability can be made to support any general proposition in an apparently conclusive manner.

Early Revenue History of Bengal. By F.D. ASCOLI, M.A., I.C.S., Oxford: The Clarendon Press. 1917. pp. 272. Price 4s 6d.

This is an exceptionally interesting and useful little book for students of the economic and administrative history of the eighteenth and early nineteenth centuries. An introduction describes the scope of the book; and the chapters following it relate successively: (1) the rise of Bengal as an administrative unit from the annexation by the Moghals till 1765 when the Company was appointed Dewan of the Provinces of Bengal, Bihar and Orissa; (2) the characteristics of the Moghal revenue system, and their successive revenue settlements; (3) the British revenue administration from 1765 to 1786, which is divided into three periods: hesitation, centralization, and completion of centralization; (4) the period of decentralization, first part, 1786-1790; (5) the Grant-Shore controversy—Grant's case; (6) Shore's case, (7) The Shore-Cornwallis controversy, leading up to the Permanent Settlement; (8) The objects and effects of the Permanent Settlement.

The first part of the book closes with a useful synopsis of events; and the second part consists of a reprint of the famous Fifth Report of the Select Committee of the House of Commons, which was issued in 1812, so far as it relates to Bengal. At the end of the book is a very useful glossary. The book is very clearly arranged and divided into

sections with headings in heavy type. It should be consulted by all M. A. students of economics and be in every college library.

The Agricultural Problems of India. By Rai Bahadur GANGA RAM, C.I.E., M.V.O., M.I.C.E., of Lahore. Simla: Manzur Ali, at the Army Press. 1917. pp. iv, 155.

The author of this book has already earned a wide reputation throughout Northern India as a bold and successful farmer. On retiring from service in the Irrigation Branch of the Public Works Department of the Punjab, he bought a large farm in a canal colony near Lahore, and has farmed it so successfully for many years with modern agricultural methods and machinery that he is popularly credited with having made profits amounting to lakhs of rupees. Two years ago he undertook another and much larger project, involving pumping of canal water to irrigate an uncommanded area in the new Lower Bari Doab Colony, upon terms of which most capitalists and successful agriculturists would have been shy. It is pleasing to find that, in spite of advancing years, his activities are entering on a third phase. After pursuing "enlightened self-interest", and thereby benefitting his fellow countrymen in strictest accordance with the doctrine of *laissez faire*, he is now becoming an active philanthropist, assisting in the development of a Department of Agriculture for the Hindu University at Benares, and interesting himself in movements of economic and social reform. This has led to his writing the book under review which is the outcome of a keen analysis of the weaknesses of the Indian economic fabric. Coming from a man of proved ability and experience it commands respect, and will in certain directions have unusual authority.

In the Introduction the author immediately strikes the right note and clearly defines the true line of economic progress in India. The panacea for India's poverty recommended by Mr. Dadabhai Naoroji and publicists of his school was reduction of public expenditure, particularly the Home Charges. "The proposed remedy was, I fear chimerical and unpractical," our author replies; "population will increase, civilization will advance, and with it the obligations of the Government and the needs of the people alike will grow. Where are now the savings effected by Lord Ripon's

Finance Committee of 1886, and indeed of other Commissions before and after appointed to effect reduction of expenditure? Long since sucked into the vortex of more costly and ambitious schemes and the ever increasing needs of the administration. The true remedy as it seems to me is not to handicap Government, retard public improvements, starve public works and even jeopardise the safety of the Empire by a misconceived policy of retrenchment; but to devise new and expand existing sources of income and to be ever on the alert to harness the discoveries of science to tapping great natural resources which an all-wise Creator has placed within our reach. The philosophy of the school from which I differ is, if I may say so with all humility, one of pessimism; the philosophy which I would advocate is, if I may say so without egotism, one of optimism.

"Agriculture, it may be truly said, is India's most ancient heritage; and amidst the galaxy of potentialities on the horizon of her future there is none of brighter or more assuring promise. Interests and activities outwardly more dazzling have hitherto absorbed too large a share of the attention of the more enlightened of my countrymen, and if I can succeed in placing agriculture in its true importance before their minds I shall consider myself amply rewarded."

The body of the book is divided into ten chapters occupying only 57 pages, which are followed by statistical tables of considerable value filling nearly 100 pages, and very largely the result of original computations from official documents. The first nine chapters cover an extraordinarily wide range of questions—economic and statistical from a scientific point of view, administrative and financial, and practical; and they suffer from being disconnected. The author first attacks the question of the poverty of India from the agricultural statistics, and estimates from the amount of food required per head per day of different classes of the population at different ages what would be the necessary consumption for the whole of India, assuming all the people to have sufficient food. Adding to human consumption an estimate for the grain requirements of cattle and horses, and allowing for wastage and seed, and exports, he finds that 77 million tons of grain foods were required in India in 1912-13, whilst the harvests of 1912-13 produced 76,860,000

tons. The estimate of human consumption is based on the census of 1911, and we must point out that an addition of approximately one per cent ought to have been made for the growth of population. A more serious criticism, however, is that the harvests fluctuate so much from year to year, and stocks of grain are so commonly carried over from one year to another, that nothing less than a three years average of the agricultural produce compared with consumption based on an estimate of the population at the middle year can give a trustworthy result. The author has opened up an important line of statistical inquiry, but has reached no conclusive result.

The second chapter, on the "present position of agricultural prosperity and effects of famine", contains most useful statistics of the yield of different crops per acre in different countries of the world and in various parts of India, from which striking conclusions are drawn as to the unrealized possibilities of the cultivation of the ordinary staple crops in India. The author believes there is in many parts of India a "persistent continuance of misdirected efforts to raise crops unsuited to the soil or climate"; and he correctly, as we think, regards this as a legacy of the old regime when each district had to be self-sufficing in its products.

The third chapter is devoted to the "Forces which retard the progress of agriculture and proposals for their remedy", and it falls into three parts. The first part deals with the evil effects of the Hindu law of inheritance through the subdivision and fragmentation of holdings; and he proposes that a law shall be enacted to prevent partition below a certain minimum area—in the Punjab, 25 acres for irrigated land, 50 acres for unirrigated, this being sufficient for two ploughs. For this as an ideal we have nothing but praise, for it means a standard of living comparable with that of European countries. In the next section on "The Land Revenue and its burden on the people", the author makes many true observations, but draws from them we think mistaken proposals for a remedy. He quotes a proposal which he first made in 1911 to abolish land revenue and substitute a tax on all produce of the land exported by rail from the locality. The author has not realized that by thus discouraging transit by rail, he would not only tend to increase the average cost of haulage, but would also effectually

hinder the realization of the ideal which he has in a previous chapter advocated, namely applying all land to the cultivation of the crops for which it is best adapted. In fact the economic losses would be much greater than the present administrative expenses and worries to rayats in collecting the revenue which he wishes to save. The third section of this chapter deals with the method of charging water rates, and the proposed system of volumetric supply which is now being experimented on in the Punjab.

In Chapter IV the author proposes that zemindars be allowed after each new settlement a chance to redeem land revenue for ever on a lump payment of 30 times the revenue. This money is to be invested by Government at 4 per cent as loans to Government banks which will use it to finance industries. The excess of the interest over the revenue lost by redemption is to be accumulated at compound interest; and he shows by an elaborately worked example that Rs. 9,000 paid to redeem the revenue of 300 acres would after 90 years have accumulated to Rs. 24,129, in spite of assuming original revenue increased by 25 per cent at a new settlement every 30 years before deducting it from the interest. There are two weaknesses in the proposal: (1) any investment made by the Government is more risky than its own revenues and some small deduction must be made as insurance against loss; (2) Government does actually in many cases secure an increase of revenue of 30 to 33 per cent (not 25 per cent) at a new settlement, and has every reason to look forward to taking a larger increase in the future, owing to the rapidity with which prices in general are rising. The first weakness would be met if Government were to invest the proceeds of redemption in the construction of railways, canals, roads and bridges which will safely pay in increased revenue to the country more than four per cent; and the second weakness could be met by requiring a higher price. If zemindars were willing to pay forty times their revenue in order to commute it (but not local cesses) for ever the money would be worth accepting; especially if the proceeds were used to develop the country. In England the Government over a hundred years ago adopted commutation of the land tax as means of raising funds; and it has been open to landlords to commute ever since, the price

being kept high and being varied from time to time in accordance with the current rate of interest.

In his fifth chapter the Rai Bahadur has many sensible things to propose for extending the work of the Agricultural Departments, and points out that the annual expenditure works out at only one pice (3 pies) per head of the population; though it would be about 4 pies per head if he took the population of British India as divisor, as he should have done. He very rightly advocates an expansion of the Department to ten times its present strength as to personnel and activities. In the next chapter follow suggestions for improvements and extension of canal irrigation; and in the seventh chapter we find a rather brief and sketchy outline of the possibilities of agriculture as a profession. Chapter VII notices the loss of rich manure to the country by the export of bones; and Chapter IX consists of a few paragraphs on the position of agriculture in the Native States. Chapter X is a summary of conclusions, and a long list of problems which the author would like to have referred to a Royal Commission to be appointed to inquire into the conditions of Indian agriculture.

There are 21 tables of statistics in the second part of the book, which cannot fail to be of use to students of Indian agriculture and national economy. A great deal of labor has evidently been devoted to compiling them. We trust that there will be a sufficient sale of this book to encourage the author to bring out a revised and enlarged edition, in which these statistics (which mainly relate to 1912-13) will be continued for later years.

Seventh Annual Report of the Patna College Chanakya Society (1916-17). The Kuntaline Press. pp.72.

We have once again the pleasure of reviewing a report which is a record of the useful work done and of the progress made by the Chanakya Society during the session 1916-17. Thirteen ordinary meetings were held during the year, in which the reports of the expeditions undertaken and of the work done by the individual members were read and discussed. The special feature of this year's report is the recording of the results of inquiries into the local industries of Behar towns, such as the gold lace industry of Patna, the iron foundry of Dinapore, oil mills,

flour mills and aerated water factories. Visits were also paid to the various industrial concerns like the Fruit Preserving Company of Muzaffarpore, the Tirhoot Moon Button factory of Mehshi and the Lime Works at Dehri.

Reports of the actual working of the village co-operative credit societies are useful only if care is taken to come in contact with real facts instead of placing a full reliance on what the members may say, since such enquiries lose their value if they are not carefully sifted. We would recommend the preparation of a *questionnaire* for the purpose. The nine family budgets published give evidence of an economic enquiry of practical nature. We are inclined to think that a more detailed and comprehensive enquiry would be desirable even though the number is limited to fewer families. There is still much room for improvement in the preparation of the family budgets, and if our suggestion¹ regarding prefacing each budget by indicating the methods of collection had been acted on, the results would have been more satisfactory. We are still in the dark as to how annual expenditure or annual income were ascertained and what special data were used for the purpose. It would be an improvement if the village statistics were to be given in a more detailed form; for example the money values of exports and imports of the village Mahendarnagar (page 37) do not throw any light whatsoever on the commodities exported or imported—a piece of information which would be of economic value. We are glad to notice however that an additional instruction has been embodied in the appendix regarding the stating of the fact whether the family budgets are typical of a particular class. We may again congratulate Professor E. A. Horne—the chairman of the Society—and the members, for the increasing success and popularity of a society that is doing such useful work in Indian Economics.

1. See review of Sixth Annual Report, I. J. E. Vol. I Part 3, page 339.

GOVERNMENT PUBLICATIONS

Review of the Trade of India in 1916-17. DEPARTMENT OF STATISTICS, INDIA. Calcutta: Superintendent of Government Printing, India. 1917. pp.iii, 81, vi, and five full-page plates. Price 4s.12.

This annual volume is again of great interest to the economist. During the year under review the progressive effect of the War developed further. The initial shocks were felt in 1915 and thereafter commenced the rearrangement of Indian trade on a basis of greatly increased prices abroad and reduced shipping facilities. In 1916-17, the imports of merchandise increased in value by 13 per cent over the previous year and the exports by 21 per cent, the figures being for the first time greater than the average for the last five years of peace. The increase over peace time is due to higher prices, however, as the want of ships has considerably reduced the gross quantities of produce entering and leaving the country.

The volume contains the usual illuminating diagrams of a popular character; and very interesting and useful summary descriptions of the course of trade in the principal commodities such as imports of cotton goods, the exports of hides, raw cotton, oil seeds and coal. At the end the movements of gold and silver coin and bullion are dealt with, and there is a useful explanation of a tabular statement of the balance of trade. Part II contains the usual summary table of imports and exports, a reprint of the Import and Export Customs Tariff and statistics relating to various matters such as index numbers of prices, tonnage of shipping, coast-wise trade and movements of agricultural produce by rail.

Financial Statement and Budget, 1918-19. Finance Department. Delhi: Superintendent, Government Printing, India. 1918. pp. iv, 340. Price Rs. 2-8.

This is by far the most interesting of the annual publications of the Finance Department, containing, as it does, a complete review of the revenue and expenditure of the Imperial and Provincial Government, of the operations necessary to maintain the cash resources and of the currency and exchange difficulties. The volume follows the usual form, except that the improved procedure of the Imperial Legislative Council whereby the Finance Member's speech follows

the debate on the Financial Statement is reflected in the order of print. The student will find in the volume the speech of the Finance Member, followed by the Financial Statement for 1918-19 in the form of tables. Then comes the report of the debate in the Imperial Legislative Council and the Finance Member's Budget speech. The Financial Statement is made on the 1st of March and the budget, which is a revised Financial Statement, is presented to the Council three weeks later with revisions proposed by the Council and suggested by the later information as regards the collection of current revenue. There follows a lengthy Memorandum explaining the details of the estimates separately under each heading; and the volume ends with three appendices: (1) a *pro-forma* account of expenditure on Delhi Province, (2) an estimate of revenue and expenditure of India for 1918-19 giving details of Imperial and Provincial figures, (3) Commercial and financial statistics. This Financial Statement is the last to be issued by Sir William Meyer whose notable tenure of office expires this year at the end of August.

The Third Wage Census of the United Provinces (taken in August, 1916). Director of Land Records and Agriculture, United Provinces, pp. 9.

A census of urban and rural wages is taken every five years. The tables printed compare the wages in 1916 with equivalent figures in 1911 and show in almost all cases more or less substantial increases. In fact there is only one decrease recorded, which is in the money value of a grain-wage paid to agricultural labor in the Meerut district. It is noted that grain rates are tending to be replaced by cash wages. Returns were received from the supervisor kanungos for 7,408 villages, of which returns for 133 were discarded. The instructions given were that the wages paid by cultivators to ordinary healthy men between 40 and 45 were to be reported. So far as possible the wages paid by influential landlords who get labor at cheap rates were eliminated. It is rather confusing that in the same tables the wages are stated in rupees, annas and pies, in others in annas and fractions, or in pice. The use of the latter unit in statistical averages seems to be confusing and unnecessary as the figures might easily be converted into annas.

REVIEWS OF BOOKS

ENGLISH

British Incomes and Property by J. C. STAMP B. Sc., (Publications of the London School of Economics) London: P. S. KING & SON. 1916. Price 12s. 6d.

This is one of the series of monographs by writers connected with the London School of Economics. The author in his preface says "I have not attempted to make the book 'reasonable' in the ordinary sense, but to provide a work useful for reference. The British Income Tax returns form the bases of the study. It is pointed out that these returns are the by product of a system of taxation with the object "of raising revenue with the maximum financial result and with minimum of inconvenience, evasion and expense." Such a system of taxation has not given a body of statistics which are consistent sequences and comparable over a number of years. A change in law or a new method of assessment makes a break in the sequence, although the figures may appear under the same tabular head in the published official returns. This every investigator knows and he will thank Mr. Stamp who has studied these legal and administrative changes for the tables in which he gives consistent sequences under the various schedules. These figures can be used with more confidence in economic investigations in which British Incomes are required.

Part II gives some application of these statistics in the study of the national income, its distribution, the national capital and the taxable capacity of Ireland. There are numerous tables, appendices and references.

T. T. WILLIAMS

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN
ENGLAND ON THE LAST DAY OF EACH MONTH

Held in the following form	30th September 1917	31st October 1917	30th November 1917
	£	£	£
1. Gold in India ...	15,000	Nil	Nil
2. Cash placed by Sec. of State at short notice	6,062,154	6,024,443	6,000,521
3. British and Colonial securities (value as at 30th September 1917) ...	27,431,499	23,026,578	21,965,653
4. Securities since purchased (at cost price)	Nil	4,529,871	5,657,068
Total ...	33,508,653	33,580,892	33,623,242

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES
AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND
THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

Year.	30th September	31st October	30th November
	Rs.	Rs.	Rs.
1915 ...	19,87,22,000	15,71,82,000	12,46,57,000
1916 ...	17,64,62,000	16,68,05,000	15,53,87,000
1917 ...	20,76,43,000	18,58,27,000	16,50,05,000
1918 ...	...	...	...
<i>Bank Rates.</i>	30th September per cent	31st October per cent	30th November per cent
Bank of Bengal ...	5	5	5
Do. Bombay ...	5	5	5
Do. Madras ...	6	6	6
Do. England ...	5	5	5
<i>Exchange Rates.</i>	s. d.	s. d.	s. d.
On Demand ...	1 5 $\frac{1}{32}$	1 5 $\frac{1}{32}$	1 5 $\frac{1}{32}$
Telegraphic Transfers ...	1 4 $\frac{31}{32}$	1 4 $\frac{31}{32}$	1 4 $\frac{31}{32}$
3 Months' ...	1 5 $\frac{13}{32}$	1 5 $\frac{13}{32}$	1 5 $\frac{31}{32}$
6 Months' ...	1 5 $\frac{23}{32}$	1 5 $\frac{23}{32}$	1 5 $\frac{23}{32}$
Government Paper (3½ p.c.)	67-12 to 68	68-12 to 69	69-4 to 69-8
Bar Silver in London ...	51½d	42½d	42½d

**BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN
ENGLAND ON THE LAST DAY OF EACH MONTH**

31st December 1917	31st January 1918	28th February 1918	31st March 1918	30th April 1918
£ <i>Nil</i> 6,000,075	£ <i>Nil</i> 6,018,719	£ <i>Nil</i> 6,014,499	£ <i>Nil</i> 6,000,499	£ <i>Nil</i> 6,000,090
18,833,135	18,833,135	18,833,135	28,452,943 (value as on 31st March 1918)	26,006,881
8,932,468	8,965,088	9,123,177	<i>Nil</i>	2,518,297
33,765,678	33,816,942	33,970,811	34,453,422	34,525,263

**BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES
AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS
AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.**

31st December	31st January	28th February	31st March	30th April
Rs. 13,02,05,000	Rs. ...	Rs. ...	Rs. ...	Rs. ...
14,59,72,000	16,49,29,000	17,27,91,000	18,02,41,000	15,77,63,000
16,81,19,000	18,63,40,000	19,59,37,000	22,94,41,000	24,72,64,000
...	22,87,44,000	25,18,83,000	22,91,95,000	17,50,00,000
31st December <i>per cent</i>	31st January 1918 <i>per cent</i>	28th Feb. 1918 <i>per cent</i>	31st March 1918 <i>per cent</i>	30th April 1918 <i>per cent</i>
5	6	6	6	6
6	6	6	6	6
6	7	7	7	7
5	5	5	5	5
s. d.	s. d.	s. d.	s. d.	s. d.
1 5 $\frac{1}{32}$	1 5 $\frac{1}{32}$	1 5 $\frac{1}{32}$	1 5 $\frac{1}{32}$	1 6 $\frac{1}{16}$
1 4 $\frac{31}{32}$	1 4 $\frac{31}{32}$	1 4 $\frac{31}{32}$	1 4 $\frac{31}{32}$	1 5 $\frac{31}{32}$
1 5 $\frac{13}{32}$	1 5 $\frac{13}{32}$	1 5 $\frac{13}{32}$	1 5 $\frac{13}{32}$	1 6 $\frac{7}{32}$
1 5 $\frac{23}{32}$	1 5 $\frac{23}{32}$	1 5 $\frac{23}{32}$	1 5 $\frac{23}{32}$	1 6 $\frac{3}{4}$
69 43 $\frac{1}{2}$ d	69 43 $\frac{1}{2}$ d	68-8 to 68-12 42 $\frac{1}{2}$ d	67-2 to 67-6 45 $\frac{5}{8}$ d	65 to 65-4 49 $\frac{1}{2}$ d

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE
OF PAPER CURRENCY, 1917-18

	30th September 1917	31st October 1917	30th November 1917
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
Total amount of notes in circulation ¹	1,08,42,92,965	1,14,76,86,775	1,12,92,58,980
<i>Deduct</i> ² ...	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
RESERVE			
Coin and Bullion ...			
<i>In India :—</i>			
Silver coin ...	28,89,02,424	28,89,50,627	24,10,75,086
Gold coin and Bullion	15,85,61,496	21,90,33,834	24,64,77,918
Silver Bullion under coinage ...	68,74,751	53,74,834	48,48,470
<i>In England :—</i>			
Gold coin and bullion	1,42,50,000	1,42,50,000	1,42,50,000
Securities (at pur- chase price) :—			
Held in India ...	9,99,99,946	9,99,99,946	9,99,99,946
Held in England ...	51,48,19,251	51,47,89,025	51,47,97,157
Total Reserve ...	1,08,43,76,965	1,14,77,66,775	1,13,02,58,980
<i>Deduct</i> ³ ...	84,000	80,000	10,00,000
Net Total Reserve ...	1,08,42,92,965	1,14,76,86,775	1,12,92,58,980

1 Figures to the left of the semi-colon indicate the number of *lakhs*.

2 Deduct—withdrawn from circulation by Foreign circles, and in course of remittance to circles of Issue.

3 Deduct—Amount due on Bills drawn by one circle on another.

ABSTRACT OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE OF PAPER
CURRENCY, 1917-18

22nd December 1917	31st January 1918	28th February 1918	31st March 1918	30th April 1918
<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
1,09,05,47,164	1,04,81,63,218	1,03,46,04,525	99,79,37,599	1,05,96,05,166
28,10,519	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
19,10,89,701	14,93,57,458	12,60,80,551	10,46,77,470	7,25,60,295
26,44,84,615	27,19,16,765	28,59,51,371	27,00,04,248	22,63,98,799
70,08,487	18,28,572	45,26,860	38,90,148	66,32,804
67,50,000	67,50,000	67,50,000	67,50,000	44,92,770
9,99,99,946	9,99,99,946	9,99,99,946	9,99,99,946	9,99,99,946
51,48,02,887	51,47,98,027	51,47,89,297	51,47,88,787	59,18,68,552
1,09,06,11,645	1,04,83,63,218	1,03,80,98,025	1,00,01,10,599	1,05,99,53,166
23,75,000	20,00,000	34,93,500	21,73,000	3,48,000
1,08,82,36,645	1,04,81,63,218	1,03,46,04,525	99,79,37,599	1,05,96,05,166

PRINCIPAL CONTENTS OF FOREIGN JOURNALS

ECONOMIC JOURNAL

(Quarterly Journal of the Royal Economic Society. London:
Macmillan and Co., Ltd.)

SEPTEMBER, 1917

I. ARTICLES—

The Nature of the Industrial Struggle, by Prof.
S. H. FOXWELL.

Housing Conditions in London, by HELEN BOSANQUET.

The Depreciation of Gold, by Prof. G. CASSEL.

Agricultural Organisation in Ireland, by L. SMITH-GORDON

II. REVIEW-ARTICLES—

After-War Problems, by Prof. F. Y. EDGEWORTH.

DECEMBER, 1917

I. ARTICLES—

Industrial Unrest, by Prof. EDWIN CANNAN.

Economics and the New Agricultural Policy, by
C. F. BICKERDIKE.

Inflation, by Prof. A. C. PIGOU.

Loans and Subsidies in Time of War, by J. H. CLAPHAM.

The Financing of Industry and Trade, by Prof.
H. S. FOXWELL.

II. NOTES—

Village Economic Surveys, Madura, South India—Employment of Boys in Agriculture—New Taxation in the United States, etc.

Book-Reviews :—*Early Revenue History of Bengal*, by F. D. ASCOLI, *Economic Problems of Peace after War*, by W. R. SCOTT, and *Economic Annals of the Nineteenth Century* by WILLIAM SMART.

THE JOURNAL OF POLITICAL ECONOMY

(Published monthly from October to July by the University of Chicago, U. S. A.)

JULY, 1917

The War and Women's Work in England, by EDITH ABBOT.

The Uniform Bill of Lading, by C. S. DUNCAN.

Medical Benefits under Workmen's Compensation. II., by J. M. RUBNOW.

NOTES—*Completion of the New Loan—Amendments to Federal Reserve Act—Trust Powers of National Banks.*

Book-Reviews:—*Civilisation and Climate* by E. HUNTINGTON, and *Property and Society* by A. A. BRUCE.

OCTOBER, 1917

The Legality of the Combination of Competitors under Sherman Act, by SUMNER A. SLICHTER.

Some Advantages of the Logarithmic Scale in Statistical Diagrams, by JAMES A. FIELD.

NOTES—*The Completion of the "Liberty Loan"—Growth of War Expenditures—Trading with the Enemy—Legislative Control of Food—Investment Effects of the War—Reserve Banks and the War.*

The Causes of Unemployment: A Communication, by H. STANLEY JEVONS.

Book-Review:—*The Development of Transportation in Modern England*, by W. T. JACKMAN.

NOVEMBER, 1917

Fundamental Factors in War Finance, by FRANK F. ANDERSON.

Taxation versus Bond Issues for Financing the War, by E. DANA DURAND.

Industrial Conscription, by HAROLD G. MOULTON.

NOTES—*Increase of Federal Reserve Membership—Progress of Public Financing—The Gold "Embargo"—Control of International Trade.*

Book-Reviews:—*Social Diagnosis*, by MARY E. RICHMOND and *Mohamadan Theories of Finance* by P. A. AGHNIDES.

THE AMERICAN ECONOMIC REVIEW

(Published Quarterly by the American Economic Association,
Secretary Prof. A. A. Young, Ithaca, N. Y.)

SEPTEMBER, 1917

The Reserve Situation in the Federal Reserve, by
RAY B. WESTERFIELD.

Fall River Sliding Scale Experiment, by STANLEY
H. HOWARD.

The War and Trans-Pacific Shipping, by ABRAHAM
BERGLUND.

Early Regulation of Public Service Corporations, by
M. H. HUNTER.

Price Problem in the Lumber Industry, by WILSON
COMPTON.

QUARTERLY JOURNAL OF ECONOMICS

(Published by the Harvard University, Cambridge, Mass.)

MAY, 1917

Financing the War, by CHARLES J. BULLOCK.

*International Trade Under Depreciated Paper. A contri-
bution to theory*, by F. W. TAUSSIG.

The Regulation of Wages in New Zealand, by M. B. HAM-
MOND.

The Literacy Test and Its Making, by HENRY PRATT
FAIRCHILD.

Co-operation among the Mormons, by HAMILTON GARDNER.

*Flax: The Fiber and Seed, A Study in Agricultural
Contrasts*, by WALTER S. BARKER.

Also Review of Kemmerer's Modern Currency Reforms.

AUGUST, 1917

*The Nature of Interest and the Causes of its Fluctua-
tions*, by A. F. MCGOUN.

Marketing Agencies between Manufacturer and Jobber,
by L. D. H. WELD.

*The Use of Private Tokens for Money in the United
States*, by B. W. BARNARD.

*Gasoline Prices as Affected by Inter-locking Stockowner-
ship and Joint Cost*, by LEWIS H. HANEY.

A Study of Mitchell's Inquiries into Prices, by B. W. KING.

Trade Unionism in the Iron Industry: A Decadent Organisation, by H. E. HOAGLAND.

General Intelligence and Wages, by ROBERT M. WOODBURY.

NOTES--The Content of the Value Concept (A. P. Usher)
Also review of KLEENE's *Profit and Wages*.

NOVEMBER, 1917

The War Tax Act of 1917, by F. W. TAUSSIG.

The Value of Money, by A. C. PIGOU.

The Concept of Normal Price in Value and Distribution,
by F. H. KNIGHT.

Value Theories Applied to the Sugar Industry, by PHILIP
G. WRIGHT.

*The Adjustment of Labour Disputes in the United States
during the War*, by LOUIS B. WEHLE.

*The Revenue System of Kentucky: A Study in State
Finance*, by ANNA YOUNGMAN.

DECEMBER, 1917

The Law of Balanced Return, by ARTHUR S. DEWING.

The Basis of War-Time Collectivism, by J. M. CLARK.

The War Revenue Act of 1917, by ROY G. BLAKEY.

Canadian War Finance, by O. D. SKELTON.

*Methods of Providing for Expenses of New Business by
Life Insurance Companies*, by H. L. RIETZ.

BOOKS RECEIVED

War Prices and House Rents. Department of Statistics, India: Calcutta: Superintendent of Government Printing. 1918. pp. 39. Price Rs. 1-4 or 2s.

Patna College Chanakya Society: Seventh Annual Report 1916-17. Calcutta: The Kuntaline Press. pp. 72.

War Revenue and Federal Income Tax Laws. New York: National Bank of Commerce. pp. 170.

Annual Report of the Indian Merchant's Chamber and Bureau for 1916-17. Bombay: The Secretary The Indian Merchant's Chamber and Bureau. pp. 293.

Report of the Proceedings of the Second Entomological Meeting held at Pusa, 5th to 12th February 1917. Calcutta: Superintendent Government Printing. pp. xii, 340. Price Rs. 3. or 4s. 6d.

Speeches and Writings of Sir D. E. Wacha. Madras: G. A. Nateson and Co. pp. 496, 44, iv. Price. Rs. 3.

Progress and Problems of Industrial India. By S. AMBRAWANSWAR. Trichnopoly: The Brahmanand Press. pp. 30.

Economics of Indian Agriculture and Industry. By KESHAV LAL M. OZA. Lahore: Punjab Printing Works. pp. 28. Price. 4s. 2.

Proceedings of the Board of Agriculture in India, held at Poona on the 10th of December and following days. With Appendices. Calcutta: Superintendent Government Printing 1918. pp. 185. Price 4s. 13 or 1s. 3d.

Indian Currency and Banking Problems. By MOHAN LAL TANAN and KUSHAL T. SHAH. Bombay: Ram Chandra Govind and Son. 1917. pp. viii, 432.

Governance of India. By KUSHAL T. SHAH. Bombay: Ram Chandra Govind and Son. 1917. pp. xxiii, 345, xi. Price Rs. 3.

The World's Sugar Supply—Its Sources and Distribution. New York: National Bank of Commerce. 1917. pp. 46.

Introduction to the Study of Indian Economics. By V. G. Kale. 2nd edition. Poona: Aryabhushan Press. 1918. pp. vii, 514. Price Rs. 5.

INDIAN JOURNAL OF ECONOMICS

Vol. II. Part 3. 1918

THE INDIAN INCOME TAX ITS HISTORY, THEORY, AND PRACTICE

S. M. PAGAR, M. A.
DIRECTOR OF STATISTICS, BARODA STATE

PART I. DIRECT TAXATION IN INDIA

I. DIRECT TAXATION UP TO 1860

1. *The Early Hindu Period.*—The term “assessed taxes”, presumably borrowed from the English fiscal practice of the eighteenth century, was used until 1914, in the Finance and Revenue accounts of the Government of India to designate a variety of taxes. By April 1903, however, all such taxes were either repealed or abolished with the exception of the income tax, which was first introduced in 1860 and lasted only for five years. The permanent income tax, with which we are mainly concerned in this monograph dates from April 1886.

Probably there is no part of India where taxes on arts, trades, and professions are as new to the people as the income tax was in England, when first

proposed by Pitt as a regular part of his financial system. These Indian imposts are known to us as the *sayar* or transit or octroi duties, the *moturpha* taxes or license duties, and the *thathameda* or capitation tax in Burma. The beginnings of these taxes are buried in the past and all we can do here is to trace, at least some of them, as far back as possible.

Our main authority for this period is the famous Hindu Law Code, the *Manava-Dharma*, a perennial source for savants and scholars of Hindu culture in all its aspects. According to the author of this code we understand that the King is justified in levying direct taxes on land, merchants, artisans, and mechanics. Revenue was collected both in kind and in coin.

On cattle, gold, and other moveables, the State's share amounted to one-fiftieth,¹ which in time of war or invasion might be increased to one-twentieth,² on land one-twelfth, one-eighth, and one-sixth of the gross produce, according to the quality of the soil and the labour necessary to cultivate it. This land tax might also be raised to one-fourth in case of war and no doubt was an important source of public revenues. The king might also take one-sixth of the clear annual profits of wood-cutters, butchers, dairy-men, perfumers, apothecaries, cane-basket-makers, stone-cutters, potters, and tanners;³ the mechanics and artisans, as well as *sudras* who subsist by manual labour, were required to work for the State one day in each month.⁴ Besides the king may levy duties on the profits of sales,⁵ claim escheats for want of heirs,⁶ and demand from one-twelfth to one-sixth of the treasure-trove, and one-half of the same in the absence of an owner, the other half to go to a priest.⁷

¹ *Laws of Manu*, Chap. VIII, verse 130.

² *Ibid.*, X, 118 and 120.

³ *Ibid.*, VII., 131 and 132.

⁴ *Ibid.*, VII 138.

⁵ *Ibid.*, VII, 127.

⁶ *Ibid.*, IX, 189.

⁷ *Ibid.*, VIII, 35-39.

Briefly stated the tax system consisted of the following—(a) a tax on the produce of land, (b) a series of taxes on personal property of every description, (c) a tax on sales, (d) a kind of poll. tax like the Roman and French corvees, and finally (e) succession duties.

Of this most complete and comprehensive system of taxation James Mill in his much quoted, but seldom read, *History of British India* rather injudiciously says: ¹ “the revenue of the sovereign arises almost wholly from the artificial produce of the land.” Land was the main source, but other taxes were not wanting to round out the tax system. As between direct and indirect taxes, the author of Manu-Smriti seems to be perfectly impartial.

As regards the effects of this legislation an impartial writer says that ² “it is certain that under the influence of this ancient legislation the Aryan population have had many prosperous centuries.” The same author is even more emphatic about the agricultural and commercial prosperity of the time. He says: ³ “for many centuries before and after the Christian era, India enjoyed a real prosperity, agricultural and commercial, which she is regaining today only in part under the domination of the Anglo-Saxons.”

2. *The Mohammedan-Hindu Period.*—(a) *The Mohammedan Period.* The Mohammedan period began in India in the twelfth century of our era and may be said to have lasted till the first half of the eighteenth century. It was, however, very seriously interrupted by the growth of the Hindu power, especially in the southwestern part of the country under the Mahrathas in the seventeenth century. For the purpose in hand we shall very briefly summarise the growth and development of direct taxation during this period.

¹ Mill, J. *History of British India*, Vol. I, p. 299.

² *L'Impôt dans les diverses Civilisations*. By E. Fournier De Flaix, Première série, 1. p. 44.

³ *Ibid* p. 43.

Industries when under the control of powerful guilds of artisans, were very famous for their artistic wares during this period. The Indian trade with the nations of the Mediterranean basin was carried on evermore on a larger scale than before. But the State needed more money to carry on its multifarious activities including that of spreading the Moslem faith with the sword if possible. It is not therefore surprising to find many imposts levied on the subject population.

The following is a somewhat partial list of the imposts¹ levied by the Moghul Emperors, beside the ancient land revenue; (1) the *jiziah*² or the capitation tax levied on non-Mohammedans according to their ability at Rs. 40, 20 and 10 each; (2) the port duties, similar probably to our customs duties; (3) a tax per head on pilgrims; (4) a tax on timber cut from the State or private forests, with a view to conserve forests; (5) presents to be given to the Emperor; (6) a tax on the various classes of artificers; (7) Tahsildars' fees, the money given to the tax gatherer; (8) 'Complimentary offerings on receiving a lease and the like; (9) a fee for testing and exchanging coins, that is, a mint charge; and (10) market tolls.

Besides these exactions there were the taxes on sales of cattle, on hemp, blankets, oil, raw hides, weights and measures; there were the special license duties on butchers, fishermen, brokers, tanners, gamblers, passports, and turbans, on the purchase and sale of a house, on salt made from nitrous earth, on the manufacture of lime, spirituous liquors, and dye-stuffs from plants.³ All these imposts must have almost choked Indian industries and commerce for many years to come.

¹ Abul Fazl—The *Ain-i-Akbari*, Vol. II, p. 66.

² Beveridge, A. *The Emperor Akbar*, Vol. I, pp. 275-76. For the History and method of levying *jiziah*, see Dr. N.P. Agnides' elaborate dissertation on *Mohammedan Theories of Finance* in Columbia University studies, Vol. LXX., pp. 528, et seq.

³ *Ain-i-Akbari*, p. 67.

The Emperor Akbar, one of the most enlightened Mohammedan Emperors, and contemporary of Queen Elizabeth, took away most of these imposts, including the hated *jiziah* levied on infidels, and built himself an everlasting name. In order to compensate for the loss of revenue, he, with the help of his famous Hindu finance minister, Rajah Todar Mull, introduced a ten year settlement in the case of the land tax and substituted money payments for payments in kind. It was one of the minutest surveys ever carried out and became the basis of Modern surveys and settlements, at least in Bengal.¹

The effect of the abolition of the various vexatious exactions was naturally felt in the country's commerce and industry. Never before or long after this period does India seem to have enjoyed such material prosperity, so much so that it is estimated that at the time of Akbar's death there were no less than 35 millions of treasure in the Agra fort alone, and that the total gross treasure in all the treasuries of Akbar's empire may be given at 70 to 80 millions sterling of modern money.²

Probably this treasure was the greatest inducement for the Emperor Shah Jahan, the grandson of Akbar, to hand down his name to posterity as the builder of the most exquisite Taj Mahal and other artistic public buildings, together with canals, the latter to insure continued agricultural and commercial prosperity. He, however, does not seem to have exhausted this huge treasure left by Akbar.

It was left for Aurangzib, to squander the remainder of this treasure in fighting the wars of succession and in suppressing smaller nationalities, in order to bring the whole of India under one empire and

¹ *Ibid.*, p. 88, *et seq.*

² Smith, V. A., *The Treasure of Akbar*, in the Journal of the Royal Asiatic Society of Great Britain and Ireland, 1915, pp. 231-43, the rate of conversion being Rs. 10 to a sovereign.

thus to realise the dream of the universal peace. But all this meant more money. Akbar's treasure was exhausted. Some of the old imposts were resorted to, among them the humiliating *jiziah*, which created more trouble than Aurangzib had ever anticipated. The *jiziah*, not the amount of the tax as such, but the method by which it was assessed and collected, was at any rate one of the causes that finally led to the downfall of the Moghul Empire in India.

(b) *The Later Hindu Period.*—A revival of Hindu power was attempted by the Mahrathas, who, according to Prof. J. Sarkar, the well known Indian historian of the Moghul Empire under Aurangzib, were the only people among the Hindus to resist the onslaughts of Islam.

The Mahrathas, true to their tradition, always believing in small nationalities and their rights, were thoroughly convinced that the establishment of a decentralised government was the only thing possible in India. They were, at least in the beginning, averse from attempting to rule a continent like India from one central place like Delhi or London. This idea of decentralisation and the establishment of local taxation for local purposes were their greatest contributions to Indian history, which Britain today is slowly but surely putting into practice.

They were specially particular about land revenue. Leases to small peasant-proprietors extending over 70 years were not uncommon. The peasants could appeal directly to the finance minister in case of over-assessment of the land tax.¹

Besides the land revenue, there were other taxes, the revenue from which was termed as Nukta-bab or the extraordinary revenue as distinguished from the land revenue. These taxes may be briefly stated as follows:² (1) the Mohturpha, a tax on merchants,

¹ G. Duff, *History of the Mahrathas*, Vol II, Appendix.

² Duff, G. *Hist. of the Mahrathas*, Vol. II, p. 238.

manufacturers, professions and houses, which came down to modern times and was not abolished until after the Mutiny, at least in Southern India; (2) a tax on certain rent-free lands; (3) a tax on profits of grass lands; (4) the Pandhari tax levied on the offerings of pilgrims at religious fairs, which was later converted into a license tax on petty artisans, and was only abolished in 1903 in the Central Provinces; (5) the customs duties; and finally (6) tributes from the conquered regions, known as the Mahratha chauth or the fourth.

3. *The British period.*—(a) *India under the East India Company.*—Without entering into anything like a detailed discussion as to the proper selection of the year which marks a dividing line between the Moghul and British epochs we shall simply appeal to facts. Shall we adopt 1757 as our starting point for British period, because accidentally in that year Clive won the battle of Plassey? Or shall we choose the year 1761 when the Mahrathas suffered their tragic defeat at the hands of Ahmad Shah Durrani, that marauding chieftain of the Afghans, thus clearing the road for the establishment of British rule in India?

The students of economic and constitutional history of India are wise, however, in taking 1765 as the starting point of British period in India. It was in this year that the titular Mohammedan Emperor, Shah Alam II, being unable to control his representative (Nabab) in the then Provinces of Bengal, Bihar, and Orissa, granted the diwani of these rich provinces to the East India Company, that is the right to collect and administer the revenues for the paltry sum of twenty-six lakhs of rupees per annum to be paid to the imperial treasury at Delhi.

The later diplomatic achievements of the company and its feats of arms against the unorganized natives are well-known. In spite of this it must be admitted that India under the Company, though centralized and subjected to the control of the Governor-General at Calcutta, and a Court of directors in London, was not really consolidated and unified. The Presidencies of Bengal, Bombay, and Madras published separate accounts and the taxation of this period was anything but uniform all over the Company's dominions. Until 1833 the Company was both the trader and the ruler. Whatever it lost in trade was made up from the Indian territorial revenues, and also from the traffic with China. In that year the company's monopoly of China trade and all its other trading functions were abolished by Parliament. The Company, however, continued to pay its regular dividends in London amounting to over £600,000¹ until after the rebellion of 1857 when its total stock and other obligations were converted into the Indian public debt.

The company very naturally continued the tax system handed down to it by its predecessors. Land revenue still formed the bulk of the revenue; even as late as 1853 this source contributed more than half of the total gross receipts.² Indirect taxation such as salt, opium, customs, transit duties, stamps, registration, excise on spirituous liquors, and tobacco contributed not less than one-third, if not more. Thus the Company's Government always tried to keep an impartial equilibrium between direct and indirect taxation.

The land revenue in Bengal was settled once for all in 1793 and the Court of Directors in approving this limitation on the Government demands from land declared that¹ "the true policy requires us to hold this

¹ East India Accounts and Papers, 1855-56.

² East India Accounts and Papers, 1852-53. The gross receipts were £28,610,000, and out of this £15,365,000 were from land revenue.

remote dependant dominion under as moderate a taxation as will consist with the ends of our Government." Later on these views seem to have been changed and the temporary settlements, lasting from 15 to 30 years, were effected in all other Indian provinces.

Among the direct taxes besides the land tax under the Company, some of which were also levied under former Governments, may be mentioned the following important imposts: *sayar*, an Arabic word meaning universal, included many irregular receipts mainly collected by provincial officers from cultivators especially, in Bengal.² It also included town, duties, duties at bazaars, and collections from Gaya and other places of Pilgrimage, all of which now form part of municipal revenues.

In Madras, on the other hand, the term *sayar* was used to designate transit duties. In the Deccan again *sayar* was divided into two branches (a) the Moturpha, a tax on professions, and implements collected by village officers, and (b) the Bullooteh, a tax upon the fees in kind received by the village artisans from the cultivators. All these were later commuted for a money tax or cess on the land revenue and are known today as the provincial rates.

There was again a tax known as the wheel tax, levied on buggys, carts, and chariots, confined to Bombay only. Collections were farmed to the highest bidder and the tax was very oppressive in amount.³ At present this tax is entirely handed over to municipalities.

The group of taxes known as Pilgrim taxes coming down from remote times, consisted of a number of imposts; (a) a poll tax upon all pilgrims resorting not only to the great temples, but to many of the smaller pagodas and shrines of fame; (b) a toll on all

¹ Select Committee on East-India Affairs, 1831-32. Vol. IV. on Revenue, p. vii.

² Select Committee, 1831-32, Vol. IV. p. xiv.

³ Select Committee, p. xv.

the offerings brought by the devotees with them. The government usually farmed out these to a renter for a lump sum; (c) fixed sums to perform the various penances; and finally (d) license fees for shops, booths, and stalls during religious festivals.¹

These various taxes were recognised to be a great hindrance to trade and commerce. Accordingly Lord Cornwallis, the then Governor General of India under the Company consolidated the *sayar* into the transit and town duties.² This was the beginning of that monstrous inland tariff wall extending over 1,500 miles from Attock in the north to Cuttack in the southeast, which was abolished only in 1878 by Lord Lytton with the aid of Sir J. Strachey, regular sea-customs being substituted for them.³ It is astonishing that a free trading England should have tolerated such a thing for nearly a century!

The Moturpha, levied on trades, industries, and occupations, and chiefly found in Madras after 1833, formed part of the provincial revenues since 1843 on account of the increase in the salt duty for the Central Government. This tax in Madras, bringing an annual revenue of over £100,000 was not abolished until after the Mutiny.

In summing up for the preceding three periods one frankly admits that the trading and the professional classes, Pandits and Shastrees, Maulvis and Kazis contributed little or next to nothing to the public treasury.

On close study one other fact also becomes prominent and it is this that India left to herself would have developed in the long run a system of general property tax and import duties, rather than low import duties and an income tax. To be sure

¹ Select Committee, p. xvi.

² Sir Ch. Trevelyan's evidence before the Fawcett Committee of 1871, Vol. III, Q. 764.

³ Strachey, Sir J., *India and its Administration*, p. 179.

an income tax would have come, but probably it would not have come so early as it did.

(b) *India under the British Crown.* A careful examination of the accounts of the East India Company for the twenty years preceding the great Revolution¹ of 1857 at the end of which India was transferred to the British Crown from the hands of a dividend distributing concern, shows that all these twenty years were not necessarily years of deficit in Indian finances as is commonly believed. To be specific, the last seven or eight years of the Company's rule show an average annual surplus of over £1,000,000, while the actual surplus for 1856-57 ending on 30th April was no less than £386,000.²

But the Mutiny in May 1857 disorganised and paralyzed the revenue system in almost the whole of Northern and Eastern portions of India, and precipitated a huge deficit for the succeeding years. A resort to new sources of revenue and to retrenchment in public expenditure was welcomed by the new Imperial Government. We are for the first time ready to discuss the beginnings of a real modern income tax in India.³

The year 1860 marks a new epoch in the Indian financial annals, not only for the introduction of the income tax, but also for the genuine attempt on the part of Mr. James Wilson and his two associates, purposely drawn from the British Treasury to introduce a sound financial system. Budgets and financial statements were made more accurate and trustworthy than before, not that there was no system under the

¹ It was really a revolution in as much as the new Imperial Government in India was made directly responsible, at least technically to the majority party in the House of Commons.

² East India Accounts and Papers, 1854-1858.

³ By India is meant only British India. The French and Portuguese possessions in India, the semi-independent states of Nepal and Bhutan, the various feudatory Native States, comprising in all more than one third area of the whole of India and more than one-fifth of the whole population are not subject to the Indian income tax. All this means few assesseees and small yield from the tax.

Company, but it was not consolidated. An adequate accounting and auditing system was also provided, but until 1914 there was no such thing as an independent audit in the Finance Department of the Government of India.¹

In the pre-mutiny Indian finance, whenever there was a deficit, an addition to the public debt was generally resorted to. Invariably the deficit was due to irresponsible control of army finances and to the obnoxious guarantee system of building railways. The expenditure on both of these items was always controlled from England.

Turning to the fiscal situation of 1860 we find ourselves facing a deficit variously estimated from £7,000,000 to £9,000,000² of which more than £3,000,000 were to be raised by means of new taxes, and the rest to be made up by reduction in expenditure. Mr. J. Wilson, with an official experience gained at the British Treasury and the Board of Trade was specially sent to bring order out of the Indian financial chaos. He introduced what may be called a triple assessment in 1860³:—(1) a tax on incomes of all kinds; (2) a system of licenses for arts, trades, and professions; and (3) a tobacco tax. Out of these the last two were dropped partly because of the difficulties of levying them and partly because they were later found unnecessary. Import duties had already been doubled in 1859 from five per cent to ten per cent. Similarly the salt duty had also been raised in each and every province.⁴

Before resuming the story of direct taxation, it may not be out of place to summarize here the chief characteristics of the fiscal policy pursued by the Government of India.

¹ Even this is very insufficient, but the new step is in the right direction, see *Financial Statement* for 1914-15.

² The actual deficit was only £4,021,385 (Fawcett Committee, 1871, Vol. 1, p. 709).

³ *East India Financial Measures* of 1860.

⁴ For exact increases in all provinces, see *Statistics of British India*, sixth issue, pp. 73-74.

First, the post-mutiny finance is characterised by the free-trade policy, which, though not inherent in the present system of Government was vigorously pursued till its climax in 1882 under the finance ministership of Sir Charles Baring (the late Lord Cromer) and Governor-Generalship of Lord Ripon, only opium, salt, arms, liquors, and spirits being left on the Indian tariff. The present reaction in favour of protection dates back to 1888 when for the first time a small duty on petroleum was levied. In March 1894 the general rate on imports was fixed at five per cent. Foodgrains, raw materials, and machinery are admitted free of duty. The duty on cotton goods however was reduced to three and one-half per cent in February 1896 and a corresponding excise duty on domestic cotton goods was also levied. The general import tariff was not disturbed until the European War. In 1916 to meet the increased military burdens the general *ad-valorem* rate of 5 per cent fixed since 1894 was increased to $7\frac{1}{2}$ per cent except that on sugar which was fixed at 10 per cent. There was also a substantial curtailment of the free list. On account of the pressure from the Home Authorities the cotton schedule was not disturbed but owing to the increased military demands the Indian Government raised the cotton import duties on cotton goods from $3\frac{1}{2}$ per cent to $7\frac{1}{2}$ per cent without correspondingly increasing the excise duty on cotton goods. The export schedule was also modified in 1916 and as a result the duty on tea was fixed at Re. 1-8-0 per 100 lbs.; in the case of jute the duty on raw jute was at Rs. 2-4-0 per bale of 400 lbs.; manufactured jute was charged at the rate of Rs. 10 per ton on sacking and Rs. 16 per ton on Hessians. The export duties on jute were doubled in 1917.

Secondly it was in this period that the much abused guarantee system of building railways was

discontinued and the Government of India began to build its own railways and irrigation systems. All this meant an enormous increase in the sterling debt of India.

Finally the direct taxation introduced in 1860 has been continued and developed till a permanent income tax was established in 1886. The salt duty was decreased and made uniform at two rupees a maund (82 $\frac{2}{7}$ lbs.) throughout the country. Not until 1907 was it substantially reduced so as to make healthful living possible for the poorer classes.¹

II. DIRECT TAXATION SINCE 1860

1. *The Emergency Income Tax.*—The income tax law of 1860 was the direct result of the desire on the part of the new Imperial Government to compensate the losses suffered by the British and other trading interests, and also to make up the deficit. For the first time in the history of the world it was demonstrated that India, an oriental country was ready to meet with equanimity and courage the greatest engine of western finance—a modern income tax.

(a) *Provisions and rates.* The Indian Income Tax Act of 1850 follows very closely its British model, that being the only successful income tax then in operation. It differs, however, from its English prototype in duration and adaptation to local conditions. It is an act “for imposing duties on profits arising from property, professions, trades and offices.” It contains four schedules as opposed to the five in the British Act, which are as follows:—

1. Profits and gains of every kind arising from all lands and houses in India, thus combining the British schedules A and B.

2. Annual profits from any profession, trade or employment in India irrespective of nationality.

¹ The new duty was fixed at Re. 1 per maund. In 1916 this duty was again raised to Re. 1-4-0 for war purposes.

3. Any interest, annuity, or dividends, payable in India to any person whether residing in India or elsewhere, finally—

4. Every annuity, salary or pension payable to any person residing in India.

As regards the rates it may be said that the Indian law corresponds to the English law of 1803, which was a percentage tax rather than so much in the £. The rates were three and one per cent for the Central administration, and the Provincial administrations respectively. The latter were asked to devote the proceeds to public works of local character such as roads, canals or local railways.

(b) *Assessment and Collection.* In the rural districts the assessments were made by the Panchayat, a local committee, usually appointed by the collector of a district. Each person liable to the tax was required to render an unsworn statement of his approximate income. The appeals were taken to the collector. The Deputy Collector assessed profits and income not exceeding Rs. 1000 a year subject to appeal to the collector in the event of surcharge. The Collectors of the land revenue, then, were solely entrusted with the execution of the Act and the management of duties. In passing it may be noted that public sentiment and tradition were adhered to, more so than now.

As regards the assessment and collection in large towns, special commissioners and collectors were entrusted with the work. In all cases assessors, then as now, were appointed by the local authorities.

(c) *Exemptions.* The authorities seem to be very careful about exemptions. It was provided that (1) persons with less than Rs. 200 a year income from all sources would pay no tax at all; again (2) persons with less than Rs. 500 income, but amount-

ing to Rs. 200 and over, paid at the rate of 2 per cent and were exempt from the duty of 1 per cent for public works, etc.; (3) all Government property was exempted; (4) officers and soldiers of any military or police force, whose pay and allowances were less than those of a captain of infantry were exempted; (5) naval and marine officers were free from the tax in respect of travelling and other allowances; (6) Ryots and persons in the occupation of lands for agricultural purposes and actually engaged in their own cultivation, paying less than Rs. 600 yearly as land revenue, were exempted; (7) persons occupying houses for the purposes of habitation only and holding the same at a rack-rent; (8) deductions on account of repairs—a sum equal to the rent of such houses for six months in every three years were provided; (9) property devoted to charitable and religious purposes; (10) life insurance premiums not exceeding one-sixth of the income.¹

(d) *Avoidance of double taxation.* Income from property situated at home, i.e., in Great Britain and paying the English income tax was not liable to the Indian tax, even though received in India. Similarly the pensioners and those in the receipt of allowances from the Government of India, paying the English tax were exempt to avoid double taxation. It may be added that temporary residents were taxed only if they stayed in India for more than six months.²

(e) *Fiscal results and the abolition of the tax.* If one were to judge the fiscal results from the vast number of inhabitants, then about 143,000,000 in British India alone, it must be admitted that they were very disappointing. On an average for the five years ending on April 30, 1865, the tax yielded a little over Rs. 150 lakhs. There are many reasons

¹ The Income Tax Act of 1860, Part XIII.

² Part IV of the Act.

which go to explain this poor yield. In the first place India is an undeveloped and purely agricultural country compared with England or even the United States. Secondly, the defects in the law itself (the English income tax machinery was absent), and hence the difficulties of getting true knowledge of incomes, were enormous. Every one liable to the tax was asked to hand in a return of his income, but a large portion understated the income and thus the honest taxpayers paid for the dishonest.¹ For instance, in what were then called the North-Western Provinces, now the United Provinces of Agra and Oudh, out of every hundred returns, about four represented approximate incomes or were acceptable to the authorities, while about 13 failed to make a return.² More than one-fifth of the total tax was paid by public officials and the fundholders, this portion being deducted at source, which seems to be the only redeeming feature of the Act. It is also true that the low minimum of Rs. 200 caused a great hardship which the Government remedied by raising the minimum to Rs. 500 in 1862. The rate was also abnormally high for the time and this fact was conceded by the government in 1863, when the general rate was reduced from four to three per cent. Again the assessments were neither revised from year to year, nor even once during the five year period. Finally the tax was a temporary one, and the Government unwillingly fulfilled its promise by abandoning the tax in 1865, only to return to some other form of direct taxation two years after.

(f) *Conclusion.* It is admitted that the income tax of 1860 was not operated successfully, especially the idea of building local public works, out of the proceeds of the income tax was an unhappy one, although it was put in the law in order to make the

¹ Fawcett Committee, 1871, Vol. I, Q.9074 *et seq.*

² Report on the Income Tax in the N.W. Provinces, 1861-62, p. 45.

Provincial administrations feel that there was something for them in the bargain.

As regards the members of the Government of India at Calcutta, it may be said that they, including Lord Canning, the Governor-General, were unanimous in putting through the income tax at any cost. Sir Charles Trevelyan, the most popular Governor of Madras, officially opposed this imperial impost very vehemently and had to pay the penalty by being recalled for his opposition.¹ Other provincial administrations, on the other hand, seem to have acquiesced calmly.

The Indian opinion and that of the European community, especially at Calcutta were directly opposed to each other. The correspondent of the London Economist, by no means an impartial observer, adds that "the tone of the Bengalee Press is as much opposed to the new tax as ever. The Bengalees of Calcutta, knowing themselves to be quite impotent for resistance, think to make up for that by incessant lamentations. Daily is the wailing and railing against the terrible income tax renewed by the newspapers that are the organs of the Baboos. Their cries for pity when they see the shears which are to be applied to the wool of their fat incomes, are ridiculous enough. This barking, we are told, may, however, be safely despised, as it is sure not to be followed by any bite." Similarly at Madras the Trade Association, presumably composed of both natives and foreigners, resolved to follow their heroic governor in the opposition to the tax. On the other hand we are informed that the non-official community at Bombay presumably Europeans, and the European community at Calcutta, were all in favor of the new taxes. It is interesting to note in this connection that the very European community, which is said to have

¹ The London Economist, Vol. XVIII, 1860, p. 529.

² *Ibid.*, July 28, 1860.

sponsored the income tax of 1860 and waxed eloquent over it, repeatedly brought pressure upon the Government of India, for the repeal of the present tax.

On the whole the British administration deserves credit for this hazardous experiment, which for the first time gave us an index, however imperfect, of Indian wealth of which many an Englishman, by no means excluding Mr. Wilson, had a very exaggerated idea until that time. The administrative experience, on the other hand, should not be lost sight of and we shall see how it was utilised later.

It is also important to note at this stage that even the Bengal landlords, who were enjoying the benefits of the perpetual settlement of land revenue, were made liable to the income tax in addition to their land revenue payments to the Government. Of course this was no breach of faith on the part of the Government since every landholder whose land revenue exceeded Rs. 600, was subject to the tax. In short there was no discrimination against Bengal landlords.¹

2. *The License And Certificate Taxes.—Preliminary Considerations.*—The Indian financial situation continued to be unsatisfactory. Retrenchments in military expenditure were effected, but they were merely temporary in character. It was also talked about that a license tax may be made a convenient means of maintaining equilibrium in Indian finance.

As a matter of reference it may be added that in 1861 a license duty was appended to the income tax, though it was in force only for seven months. It imposed a duty of one rupee, two rupees and three rupees on all artisans, shop-keepers and wholesale merchants and professional people respectively. But this system of licensing, scrupulously excluded the

¹ See East India Accounts and Papers, 1860, for the whole controversy.

ministers of religion, the ministers of justice, the government officers, and men of the army and navy.¹

(a) *The License Tax.* At any rate the Indian Government, with a view to avoid a vast deficit, levied a license tax in 1867 according to a graduated scale on all professions and trades, ranging from 4 rupees to 25 rupees in such a way that the rate should in no case exceed 2 per cent, the minimum license fee being Rs. 4 on all profits of Rs. 200 and less than Rs. 500 a year, while the maximum license fee was no less than Rs. 500.² Persons in the public service, though they did not have to take out a license, were subject to the tax.

Military officials not in civil employ, whose pay and allowances did not exceed Rs. 6,000 per annum, and the Government employees with a salary of less than Rs. 1,000 a year were not liable to the tax. Cultivators of land, not keeping a shop for the sale of produce, which would be equivalent to practising a trade, the land-lords, and the house-holders, were also exempted.

On the whole this was an improvement over the Income Tax Act of 1860 under which agricultural incomes were assessed. But it was, like most other license taxes, unjust in that it fell mainly on the small traders; moreover those who made higher profits also paid the same rate, that is 2 per cent or even less in the case of those whose profits were more than Rs. 25,000 a year. Add to this the small minimum allowed, and the favoritism shown to the Government employees with a salary of less than Rs. 1,000 a year.

¹ Moral and Material Progress of India, 1882-3, p. 176.

² The deficit for 1866-7 was £2,000,000. It was also in this year that the Indian fiscal year was made to correspond with the British fiscal year.

³ The following scale was adopted:—

Rs. 4 on profits from trades of Rs. 200 and less than Rs. 500.

Rs. 10 on profits from trades of Rs. 500 and less than Rs. 1000.

Rs. 20 on profits from trades of Rs. 1000 and less than Rs. 5000.

Rs. 100 on profits from trades of Rs. 5000 and less than Rs. 10,000.

The English community in Calcutta and elsewhere began to rail against its provisions and went so far as to say that they did not object to being taxed, but they would like the taxes to be on "proper principles", i.e., be taxed as the people in England were taxed at the time. In short they made a plea for a more equitable form of income tax.¹ From the fiscal point of view, the one which alone concerns us here, the license tax was a failure. It produced less than half of what the income tax produced in its expiring year, although the number of assesseees was nearly three times as large.² All this pointed towards change and reform.

(b) *The so-called Certificate tax.*—In the following year, that is in 1868, the license tax was repealed and was substituted by what has been termed the Certificate Tax, which was much broader and wider in its classification and extent, but was to last only for one year. Everyone liable to the tax had to take out a certificate from the Government. It was divided into ten classes, as contrasted with the six of the license tax, according to the annual profits, the taxable minimum being Rs. 500. The tax was a lump sum tax and began with Rs. 8 on Rs. 500 going up by a gradual scale to Rs. 6,400 on Rs. 4,000,000 and upwards.

The exemptions were in fact precisely the same as in the license tax of the preceding year. The rates were two-fifths lower than in the license act and the minimum was also higher than before. Thus it resembled more closely an income tax, but the inequalities, as between classes, were not eradicated. Fiscally it was more disappointing than the preceding tax. It produced less than two-thirds of the license tax,³ the reduction being mainly due to the raising of

¹ Fawcett Committee, Vol. III, 1873, Lord Lawrence's testimony, p. 328 *et seq.*

² *Ibid.*, Appendix I.

³ Appendix I.

the minimum from Rs. 200 to Rs. 500. In short the Certificate Tax was only an enlargement of the license tax.

The English community again disapproved of this tax—this time unjustly, because the tax was made to reach more of the larger incomes from profits of trading, on the same principle as in the case of the license tax. All this led to an income tax. Again this time the Home Authorities (*i.e.*, the India Office, in London) took the side of the rich English trading classes, and vehemently declared that they did not think it fair to put a license tax or a certificate tax on certain classes and not on others, who were equally well off.¹

3. *The varying Income Tax.*—In order to put a quietus on the agitation against the Certificate Tax the Government of India finally decided to go back to the income tax, but unfortunately, instead of making it a permanent source of revenue or fixing it for a term of years, it was to be levied only for one year.

In short the Government reintroduced the income tax in 1869, but this time only at 1 per cent on all incomes of Rs. 500 and upwards, arising from offices, property, professions, and trades, including incomes derived from land by landlords and tenants. The Military Officers were as usual exempted and no tax was imposed in regard to property set aside for religious and charitable purposes. In the middle of the same year, to avoid a serious deficiency in the estimated revenues, Lord Mayo's Government suddenly increased the rate to $1\frac{1}{2}$ per cent. In 1870 a further rise took place, and the tax was now fixed at six pies in the rupee, equivalent to $3\frac{1}{8}$ per cent. In 1871 the rate fell to $1\frac{1}{24}$ per cent,² and the minimum was raised from Rs. 500 to Rs. 750, and further raised to

¹ Fawcett Committee Report, Vol. III, p. 329.

² Report on the Income Tax in Bengal for 1869-70 and 1871-2, p. 33 *et seq.* Fawcett Committee.

Rs. 1,000 in 1872. Finally in 1873 there came a second period of total abolition of the income tax.

Before passing any final judgment on the income tax acts enacted between 1869 and 1873, we shall try to summarise the changes and differences that were to be found in the provisions of these tax laws as contrasted with those of the law of 1860. Under the first income tax every person liable to the tax was required to render a statement of his income; in the more recent laws that provision was omitted, and instead the collector was required to send a statement of the sum to be paid by the tax-payer who was bound to prove in case of an appeal that his income was less than the one stated.¹ This change necessarily increased litigation, extortion,² fraud, over assessments, uncertainty and employment of informers, and subordinate officials for assessing purposes. Add to it the changing rates, and you have the greatest distrust and a vociferous, though just, popular agitation against the income tax.

This was probably the greatest blunder ever committed in the financial annals of the country. It was attacked from all sides. Every year there was a discussion and every year there was a hope of getting rid of it. The authorities did not distinguish between the English and Indian economic and financial conditions. To make the income tax in India serve the same purpose as in England, that is making it a varying tax to suit the ever changing needs, and in peaceful times at that, was untactful.

In regard to the fiscal results, it is true that the tax in 1870 at the rate of $3\frac{1}{2}$ per cent produced much more money than the tax in 1860-61 at the rate of 4 per cent, the actual amount being over Rs. 200 lakhs.

¹ Vol. I, Qs 2790-1; Vol. II, Qs. 7465, 7747-49, 7581-82.

² For cases of extortion, etc., see Report on the Administration of Income Tax in Bengal for 1869-70, pp. 22-23.

This was due partly to the improvement in assessing incomes and partly to the experience gained in the past. More than half of the tax payers were, however, from the income class of Rs. 500-1,000. The total tax payers, on the other hand, were not more than half as many as those in 1860.¹ The charges of collection were also moderate, of which we shall speak at length, when we discuss the present tax.

Now coming to the income tax experience in India thus far, it is fair to conclude that: (1) though the varying income tax proved a failure, the application of the income tax principle to Indian conditions was fairly legitimate; (2) it would work well and give better results if assessed by local authorities with the help of non-official boards or committees; (3) it would be more suited to a people who are united to their government by a strong tie of national interest. As Indians are accorded more voice in the government of their own country, this tax would become more popular than ever; (4) this was the best method of taxing the trading and professional classes along with the highly paid government officials; (5) the minimum of exemption from the income tax should not be fixed below Rs. 500, if not above Rs. 1000, and the 2 to 3 per cent rate would be preferable, at the same time constant tinkering with the rates being fraught with danger; (6) the employment of ill-paid public servants on a large scale to assess and collect a tax of this sort is uneconomical in the long run; (7) the income tax based upon the principle of self-assessment, without the means of verification, is unsuited; and that (8) the tax, as far as possible, should be collected at the source.

¹ Appendix I.

(To be continued)

THE ART OF ECONOMIC DEVELOPMENT (CONTINUED)

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V.—PRINCIPLES OF FINANCE (CONTINUED)

6. *Distribution of Burdens as between Present and Future—Periods of Public Debts.*—One of the most important of the principles of public finance is that which deals with the distribution of burdens as between the present and the future. In practice the theory resolves itself into the answers to the questions, firstly, what expenditure may legitimately be met out of public debt and, secondly, what should be the period of repayment of the loan. There is nothing new to be said on this subject; it will suffice for me briefly to explain the principles involved and to indicate those opinions of accepted authorities with which I concur.

It is obvious that when the State undertakes certain expenditure which will provide a continuing benefit

for the people of some locality or the nation at large, for the present time and for a number of years, the burden of paying the cost of such benefit ought to be extended over the number of years which the benefit lasts. If an important harbor improvement work, irrigation canal, or trunk line of railway be constructed, it is likely to remain in use, or at least the greater part of it, for seventy or eighty years. It is obvious then that the whole cost of construction should not be paid for by the present generation, but future generations should contribute thereto. This is usually done by constructing public works out of borrowed money and arranging for the repayment of the loan either by instalments extending over the period for which the work is estimated to be likely to remain in service or by creating a sinking fund or reserve which will grow at compound interest to the amount of the loan at the end of the estimated period of its duration. All modern authorities are agreed that the capital expenditure necessary for the works and plant of any reproductive undertaking to be constructed by the State can be financed properly by means of a loan, so long as the loan is repaid during the estimated serviceable life of such works and plant either by instalments or by the accumulation of a sinking fund.

There are three other classes of non-recurring expenditure which according to economic principles may justifiably be met by means of a loan, although in these cases all authorities are not agreed:—

(1) The most easily justified class is that of public works which conduce to the economic welfare of a district by increasing the social income, and are capable of providing an indirect monetary return in the shape of additional taxation, which could easily be collected from the class of persons who benefit therefrom. A good example would be the construction of

roads in an agricultural district, the annual loan charge being met by a special cess upon agricultural land so improved.

(2) The second class of expenditure is that caused by emergencies which cannot be foreseen or prevented, such as wars and famines, or calamities like earthquakes. The chief justification for throwing the burden to a large extent on the future is that it is beyond the taxable capacity of the people to provide the expenditure immediately out of annual revenue. Furthermore, it may be argued that a war is undertaken for the benefit of posterity, or to avert the continued future injury which would result from defeat.

(3) The third case is that of providing buildings, parks, or other works of public amenity. These are for the direct use of the community, either in its corporate capacity, *e.g.*, a town hall, or as an aggregate of individuals, *e.g.*, a park, promenade, or free public library. Here the justification of meeting the expenditure from a loan lies in the fact that a building of a permanent character is erected, or work of permanent utility done in laying out the park or promenade; consequently they will be enjoyed by future generations for very many years, and payment for the cost of providing that enjoyment should be spread over its probable minimum period of duration.

In regarding as justifiable the use of loan monies for non-productive works, such as the public amenities above referred to, I differ from Bastable, but am in agreement with Sidgwick and also with the actual practice in English local finance as authorized by the Local Government Board. Bastable states, "What we have called 'economic' outlay has a claim to be met by borrowing that does not hold in respect to other forms . . . Non-economic expenditure is primarily to be met out of income, and unless it can be so dealt with

ought not to be incurred." ¹ He has previously defined economic outlay as that made "for the purpose of securing future revenue." He does not explain precisely how the future revenue may be secured; but presumably he does not refer only to reproductive, *i.e.*, commercial undertakings by the state, but would include the raising of additional revenue by taxation where the special expenditure in question had provided the means of paying the extra tax, as in the example of roads given above. Bastable specifically states that buildings existing for public purposes, from the Houses of Parliament down to the smallest town hall are consumers' capital and their cost must be supplied from sources other than loans. Sidgwick states his views very clearly, and, as I think, correctly. He says, "There are two chief cases in which private borrowing is recognized as justifiable: first, where the loan is employed productively, so that the additional profit obtained by the use of it supplies a fund from which the interest may be paid, and a certain proportion of the principal annually repaid; and secondly, where it is employed to meet an exceptional necessity for enlarged consumption, which could not be defrayed without inconvenience or even suffering out of the income of a single year, so that it is good economy to spread it over several years. Each of these cases has its counterpart in public finance." ² He proceeds to regard as productive outlay, both that which yields a direct revenue by means of a Government undertaking and that which is reaped from the community as an aggregate of individuals by means of increase of taxation. He remarks in regard to the latter class of productive outlay, that it is sometimes very difficult to say how far any particular increase is really

¹ *Public Finance*, p. 870.

² *The Principles of Political Economy*, 3rd. ed., pp. 549-53.

due to the supposed productive outlay and not to other causes of national prosperity. "Borrowing for this latter kind of expenditure, therefore, though often highly advantageous, requires to be very carefully watched." He proceeds further to point out that there are cases where expenditure cannot be made to yield any definite direct or indirect revenue, but may yet increase the total social income, and proceeds as follows: "We have already seen that from a social point of view borrowing may be profitable, by increasing the aggregate produce of the community, even though it does not bring in an adequate return to Government, either in the form of profits on a special business in which the loan is employed, or more indirectly by an increase in the yield of certain taxes. In such a case, however, it is most probable that the increase in the total income of the community will not be equally distributed among the incomes of individual members; hence, unless the interest and repayment of the loan can be provided by imposing a rate on the persons who gain by its employment, fairly proportioned to their respective gains, it has a tendency to cause a new inequality in the distribution of wealth which ought to be considered in adjusting the general burden of taxation." The principle of borrowing to meet "an exceptional necessity for enlarged consumption" really covers the last two cases which I enumerated above, namely, borrowing for an emergency expenditure, such as war, famine, or earthquake, and borrowing for the construction of works of public amenity which are consumers' goods for the public at large. I am of opinion that it is good finance to provide public amenities such as markets, parks, schools, and even town halls, out of loan moneys whenever they are clearly wanted and the municipal income can be expanded sufficiently to

bear the loan charge. Borrowing for such purposes corresponds to buying on the hire-purchase system, and is objected to by some writers on the ground that the ease with which money is thus obtained and the burden largely shifted to the future encourages extravagance. This appears to be a one-sided view. Borrowing for public amenities of permanent character should, of course, be cautiously exercised only after such thorough enquiries as will fully demonstrate the public utility or otherwise of the proposed work.

If the plan recommended by Bastable, which has sometimes been adopted in England, and is the usual practice in India, of constructing all public works of a non-reproductive character out of revenue, be adopted, it is obvious that the present generation has to bear the burden of providing utility and enjoyment for future generations. For example, a new school building is constructed substantially and may be expected to remain in use for one purpose or another for seventy or eighty years. Yet the whole cost has been met by the persons paying taxes in the year or two during which it was constructed. It may be urged that, if the expenditure of the whole country on works of a non-reproductive character be averaged, a certain proportion of the public revenue is set aside each year to meet the capital cost of such works which are constructed in a number of different districts each year. Each district has then to wait its turn to get a share of a year's public revenue for the buildings it requires, when it will obtain it free of any burden of debt charges. It may be said that in the end the average result is the same by this method as if each district constructed its own works out of borrowed capital and incurred the debt charges, for each district certainly incurs an annual charge which is part of the cost of the works allotted to other districts.

In reality the difference is exactly similar to that between the old-fashioned building societies, aptly called "dividing" societies, and the modern building societies. In the old dividing societies fifteen or twenty persons would club together and each agree to pay into the society's common fund so much per month—say, if there were twenty members, at the rate of one twentieth of the cost of a house each per annum. Each year they would meet and draw lots as to which of the members should build his house that year. The lucky member would secure a house after paying his first annual instalment; but the most unlucky members would have to wait nineteen or twenty years, and would have paid most of the cost of the house long before getting it. In course of time it was discovered that the collective security of such a society would enable it to borrow funds, sometimes from members, more often from outsiders. Consequently a member who wished to expedite the building of his house before his turn could borrow through the society and pay interest on the cost of the house until he drew the right to a whole year's annual subscriptions. Through this stage the building society has evolved into its modern form—merely an institution for granting mortgage loans to all persons becoming members and purchasing houses. The necessary funds are obtained by taking fixed deposits both from members and from the general public. The great advantage is that every member can secure a house just at the time he wants it and may pay off the loan by instalments in such a period as may suit his income. The same evolution has been taking place in the finance of local authorities in England; and it would be a great step forward in the evolution of Indian public finance to make a similar change. The system of grants-in-aid

by the Government of India to Local Governments, and by the latter to municipalities, should be abolished, and freedom should be given to all Local Governments and local Authorities to contract loans for all public works, whether reproductive or not, a proper control being exercised over the purpose of the expenditure and the period of repayment of the loan.

As already mentioned above, the period for repayment of the loan required to construct any work should coincide with the estimated period for which that work will remain in service. The work should usually not be constructed unless the estimate shows that the net revenue likely to be yielded by it will be sufficient to more than cover the combined annual instalments of repayment of the loan and of interest on the capital outstanding, within the estimated life of the work. The burden which a loan imposes upon the future recurring expenditure consists of both interest and capital repayments, and in estimating the burden to be imposed upon an undertaking or, in the case of non-reproductive works, upon the future taxpayers, both must be taken together. If a loan is repaid by equal annual instalments of the capital sum the interest represents a continually diminishing annual charge. The only plan by which the burden can be equally distributed between the immediate and more distant future is to adopt the *annuity method*, making the loan repayable by equal annual instalments consisting of interest and capital repaid combined.¹ In this case, since interest plus instalment of capital repaid always amount to the same sum, the interest represents a continually diminishing part of the whole instalment paid to the lender.

¹ The instalments are perhaps more often calculated half-yearly, or sometimes quarterly, or even monthly. Full information as to the necessary calculations for different methods will be found by referring to the following work: *The Repayment of Local and other Loans* by E. H. Turner (published by The Manchester University Press; 1913).

In so far as a loan is contracted for expenditure on machinery the annuity method may be inapplicable, a higher rate of repayment of capital being necessary in early years to counterbalance the high cost of repairs and risk of commercial obsolescence in later years, as well as the increased cost of new machines needed for replacement. The full solution is obtained by applying the *unit cost* method, see E. A. Saliers, *Principles of Depreciation* (Ronald Press Co., N.Y.; 1915), p. 166.

A principle which is not usually taken account of is the secular depreciation of the value of money. National revenue increases at least as fast as the depreciation proceeds; consequently the burden of a given annual charge decreases, and it might be argued that the combined annual instalments of interest and capital repaid should be arranged so as to increase slightly, say by one per cent per annum. On the other hand the growth of new public wants is so rapid that demands upon the revenue for the service of new loans cannot all be met, and an increasing annual charge for an old loan would be felt as a heavy burden. Consequently the annuity method of equal annual instalments of principal and interest combined is probably the most equitable as between the present and the future.

The period of repayment should in most cases be arranged to coincide with the estimated service and duration, not of the work taken as a whole, but of its component parts such as buildings, machinery, woodwork, etc., treated separately. The practical application of this principle will be elaborated later on in Chapter X.

VI.—OBJECTS OF DEVELOPMENT

1. *Development creates new Environment, and results are foreseeable.*—Anyone who attempts a comprehensive study of economic development cannot fail sooner or later to be confronted with insistent questions as to the ultimate objects to be aimed at in devising measures of development. The immediate object of economic development is very greatly to change the environment of the population of the district to be developed; and to this change the population is sure to react in certain ways which we can forecast, and also in many ways which we cannot foresee.

We know, for example, that by bringing a railway into a district we usually increase the prices of all agricultural produce and lower the prices of manufactured goods, thereby destroying the village handicrafts, and at the same time causing a huge growth of manufacturing towns and a dead level rural society almost entirely composed of agriculturalists. The cheap manufactured goods are tried in the villages out of curiosity, and gradually many are regularly purchased because they have permanently created new wants. The character of these new wants will depend on the kinds of goods offered in the villages. Have they an educative or a degrading effect? Again we know that if we can increase the means of subsistence, as by distributing improved seed and agricultural implements, the population tends to increase, often rapidly, other things being equal. Also we know that education develops new wants and thus raises the standard of life, and that this acts as a preventive check on the growth of population. There is much that we know too as to the effects of changes of prevailing occupation on the character of a population.

The foregoing examples will be sufficient to prove that at the present day it is possible to devise a

program of development with a definite and intelligible human end in view. In the past public works have been undertaken by Governments groping blindly for measures which were believed to be likely to benefit their subjects, or by companies seeking profitable spheres for the investment of capital. What the ultimate effects of the "benefit" or the profiteering would be was never considered. Nor is the end considered even at the present day, except fitfully and sporadically in America and Australia. The world has yet to create and to learn the supreme art of arts—the conscious moulding of populations towards an ideal. "Constructive statesmanship", educational policy, eugenics, are imperfectly developed parts of this art. On its economic side it has been most seriously neglected.¹

2. *Relations of Economic to other Activities.*—It is very necessary always to bear clearly in mind that economic activities are not an end in themselves, but only the means whereby certain of the wants of man are satisfied. A large number of desires can only be satisfied by other experiences or activities. These desires, such as for knowledge, for opportunities of doing good, for the esteem of fellow citizens, for the delights of love and friendship, for the emotion of sexual passion, for the care of children, and so forth, are non-economic, and give rise to non-economic activities, because wealth cannot buy them, or can at least only indirectly assist in obtaining them. Both the economic and non-economic activities

¹ Socialist writers have gone far towards recognizing and gaining acceptance for such an art, but have contributed little of constructive character towards establishing it on a rational basis. The stimulating work of Mr. and Mrs. Sidney Webb in their own books, in the Minority Report of the Poor Law Commission (1910), and in the Fabian Research Committee is, however, of a boldly constructive character. Even more suggestive, because based on a wider human knowledge, are the proposals of Prof. Patrick Geddes for the rehabilitation of cities and for regional development in relation to them, see references in § 5. of this chapter.

are equally essential to life. Economic welfare is a part of welfare in general.¹

Probably the soundest as well as the simplest view of the relation of the economic and non-economic activities is given by the theory which traces the recurrence of all activities firstly to their survival value in the evolution of man as a highly specialized animal, and secondly to the subsequent interaction of the intelligence and felicific power² which originated and were developed by survival in the struggle for existence. For the preservation of individuals food and shelter are necessary, and in any climate but the tropics clothing also. The provision of these gives rise to economic activities for the supply of what we call necessities. On the other hand in the preservation of the race, reproduction and mutual combination for protection against enemies are two great factors of survival. The former embraces all activities determined by sex relations and motherhood; the latter altruism and the instinct of co-operation to secure a common end.³ In so far as activities are directed to these three primary ends—nourishment and preservation of the individual, reproduction of the species, and protection of the race—they may be called *functional*.

Actions of the first class are either (1) instinctive, (reflex) as avoidance of a blow, or walking, or (2) deliberate, as eating. Actions of the instinctive class are indifferent as regards feeling, but before they became fixed as habits were not so—they resulted either from avoidance of anticipated pain or experience of pleasure (of accomplishment, as well as from sensation) in the child's very early experience⁴. Actions of

¹ A. C. Pigou, *Wealth and Welfare*, p. 3.

² A convenient term introduced by Prof. F. Y. Edgeworth to mean "Capacity to extract pleasure from given material means." See his *New and Old Methods of Ethics*. Oxford: J. Parker, 1877; p. 71.

³ Thomson and Geddes, *Evolution* (Home University Library) p. 146.

⁴ H. B. Marshall maintains that "any content may bring pleasure under proper conditions" (*Pain, Pleasure and Aesthetics*, p. 245), and he points out that the emotion of fear in mild degree is pleasurable, and is playfully sought (p. 246).

the second and third classes are generally deliberate, but these after being often repeated may become reflex.

We may regard the reaction on the individual's state of feeling as the mechanism whereby activities of all three groups have acquired greatest survival value. The reaction in the first group of functional activities is both negative and positive, that is, for example, absence of food is painful, and so is a wound, but the taking of food is to the great majority of persons pleasant in varying degree according to the state of the appetite, and the kind of food; and a healthy functioning of all the organs of the body is also pleasant. In the second and third groups nature has used the pleasant reaction more than the unpleasant; yet the crying of a child, the sight of a bleeding wound, and even the thought of a friend's suffering, are unpleasant in the races of men which have proved their power of survival by multiplying till they form nine-tenths of mankind. In a lower stage of evolution, at least among some races of man, there was no combination for mutual protection. When men lived like animals by hunting, every man was against every other, and doubtless the sight of a bleeding wound was pleasant. The domestication of animals and plants and particularly the adoption of settled agriculture, led to the social instinct emerging with a pronounced survival value. Men to whom the sight of a bleeding wound was pleasant or even indifferent, and who were thus tempted too easily to violence, were doubtless consistently exterminated by joint action of their fellows until the opposite reaction on feeling remained ingrained in a civilized race. There are, however, occasional reversions to primitive type even amongst civilized nations.¹

¹ I am indebted for many of the ideas in this paragraph and the succeeding one to Professor H. Lester Ward in his *Pure Sociology*, (especially Part II, Chapters VI and VII, particularly pp. 126-7, 133-4 and 185-7), though I have not followed him exactly.

The next stage of evolution is of very great interest and importance. In the struggle for existence the early factors of survival were physical adaptation to environment, muscular strength and agility and the pleasantness of the reproductive activities; afterwards sensitiveness of perception, intensity of power of feeling, and intelligence in deliberately deciding actions, became powerful factors of survival amongst individuals, at the same time that the social reactions on feeling became factors of race survival. Having thus had highly developed in him the capacity of intense pleasurable feeling, and intelligence to discover and remember what actions caused the pleasant sensations, man has been led to repeat pleasant sensations beyond their functional value, merely for the sake of the feeling (*e.g.*, eating sweet-meats) and has gradually discovered a whole range of visual, auditory and tactual sensations which for every brief period of experience excite the pleasant state of feeling. Very many of these new kinds or combinations of sensations, but by no means all, result from actions of an economic character, and require the consumption or use of some commodity. The power of perception is capable of education so that the pleasant feeling created by a sensation is increased in intensity and prolonged in time, and sensations previously indifferent or unpleasant become pleasant. Thus arises aesthetic enjoyment. Especially has the perception of visual and auditory sensations proved capable of education, as in appreciation of artistic form and of the musical sequence of sounds. Yet man is still fundamentally dominated in all his reactions to external stimuli by qualities inherited from the most remote ancestry, so that artistic forms are pleasing not only on account of variety of stimuli, but on account of their approximation to natural

forms (as of trees, clouds, the human figure) and natural colors (green, brown, grey, sky-blue) to which man has for ages become habituated as a favorable environment.¹ The corresponding evolution of the reproductive and social activities to the plane of intelligent utilization for production of pleasant feeling is as yet far less advanced. The disconnected studies of sex relations and motherhood, of civics, and of the allied political and social sciences and arts, are a beginning in this direction.

3. *Maximization of Happiness as the Aim of Deliberate Social Action.*—The so-called "utilitarian" theory involves two entirely distinct theses which were clearly distinguished by Bentham², but have been confused by many of his critics: (1) that all deliberate actions proceed from the individual's innate desire for increase of pleasant feeling, and for avoidance or reduction of unpleasant feeling; and (2) that all individual, social and state rules of action should be such as will maximise the balance of pleasant feeling, *i.e.* happiness, in the community as a whole. The first thesis is a question of fact and belongs to the science of psychology. According to modern psychologists consciousness is at different times in a state of pleasant feeling, or indifference, or unpleasant feeling, the first and last varying frequently and rapidly in intensity, so that feeling may be said to be positive, zero, or negative at any moment.³ Positive feeling tends to accompany the physiological process of anabolism, or building up, and negative feeling (unpleasant) tends

¹ H.R. Marshall, *ibid.*, pp.310-3.

² *Introduction to the Principles of Morals and Legislation* (ed. of 1823), Vol. I, Chapter III, p.41. Cf. also Sidgwick, *Methods of Ethics*, 1st ed., p.148; the passage was omitted in later editions.

³ The fact that painful and pleasant sensations are "conveyed" from the sensitive surfaces of the body by different sets of nerves does not show that the unpleasant and pleasant states of feeling are not the negative and positive intensities of a single kind or quality of feeling. It is within everybody's experience that in deciding actions unpleasant feeling is set off against pleasant feeling and the balance (whichever is greater) determines the action.

to accompany katabolism, or breaking down of bodily tissues. The state of feeling at any moment is caused by sensations which are either caused peripherally, that is objectively, by some physical contact with one of the five organs of sense, or are aroused centrally by remembrance or imagination.¹ The centrally aroused stimuli are of much less intensity than the corresponding peripherally aroused stimuli; but any highly educated or cultured person so constantly experiences pleasure by memories of past events, and by the anticipation of future enjoyments which he imagines, that the greater part of his feeling is centrally aroused. There is a natural tendency to forget the unpleasant side of things and to anticipate pleasant things. The person with the reverse tendency in anticipation is a pessimist.

The recognition of the desire for pleasant feeling and for the avoidance of unpleasant feeling as the motives of all deliberate actions assumes that acts of duty and altruistic actions generally have a hedonic effect. In the case of duty the motive is either the avoidance of the anticipated unpleasantness of the law and public disapprobation, or the pleasure of self-esteem which a person feels in doing what he has learnt to regard as his duty. Rules of duty to others have become recognized by public morality, their general object being the maximization of happiness. Certain of such rules which originated for this object, or for race preservation in a former stage of the evolution of society, are now merely archaic survivals, but from force of habit are still regarded as being necessary restraints. Altruistic actions may be said to arise in different cases from a sense of duty and from sympathy. By sympathy the imagination arouses centrally sensations corresponding with those which

¹ In the nomenclature here adopted I have followed Titchener, *Outlines of Psychology*.

it is supposed the other person is experiencing, and a pleasant or painful state of feeling is thus evoked. If an unpleasant feeling is experienced, then the person thus feeling by sympathy tends to take action to mitigate the supposed state of painful sensations of the other person. It must be within the experience of most charitably disposed persons that occasionally sympathy is aroused by imagining a person to be suffering painfully when such is not at all the case, and an offer of comfort or alleviation is rejected, or the person supposed to be suffering may prove to be a fraud acting cleverly. Yet so intense was the pain caused by imagination in the charitably disposed person that he was impelled to offer help and find out the fact.

So far we have been dealing with momentary states of feeling which become motives of action. Pleasure may be defined as the pleasant feeling arising from a particular sensation. Happiness and unhappiness, on the other hand, are terms which relate to the resultant or balance of feeling for a certain duration of time, which in the common usage of the word would hardly relate to less than one or two hours. Happiness may thus be defined as the state of feeling existing throughout a period during which many different sensations both peripherally and centrally aroused are experienced, and react upon feeling so that the resultant or balance of the *amount* of feeling (*i.e.* intensity multiplied by time) is positive, that is pleasant.¹

The second thesis is a normative statement accepted by the utilitarian school as the fundamental criterion

¹ *Happiness* has been defined by Lester Ward in his *Pure Sociology* thus: "The greater part of all happiness consists in satisfying desires" (p. 104); "Men are always subject to a great number of desires, and if a fair share of them are satisfied at intervals of time there results a general state which is called happiness" (p. 106); "the normal exercise of every organ or faculty is attended with pleasure, and in health the sum total of all these pleasures, moderate and strong, constitutes the state called happiness. . . . Happiness is subjective while virtue is objective." (p. 131).

of rules of conduct in the arts of ethics (or morality) and politics, and in all state and social action. I have elsewhere maintained that there are three great aims of human, and especially social, activities: (1) preservation of the tribe, city or state, (2) religious emotions, (3) maximization of happiness—and I argued that all three are ultimately directed to the same end of increasing the happiness of the race or of the individual.¹ The justification of the utilitarian choice of the greatest happiness of the greatest number as the normative principle appears to be two-fold: (1) that as a matter of fact people actively engaged in affairs and knowing nothing of doctrines or normative principles, always do, as a matter of fact, unconsciously, and sometimes consciously, apply this criterion directly, and more often by implication, in their advocacy of national wealth, national defence, improved health, and so forth; and (2) that no other rationally intelligible aim of policy has been proposed. The only other aim which may be considered rational is the breeding and training of the race to the highest physical and intellectual efficiency—the attainment of the perfect man capable of the maximum bodily and mental activity. The latter ideal involves the possibility that the more perfect in development and efficiency man becomes the less will be his capacity for enjoyment, and the smaller his chance of happiness, for happiness has no necessary connection with perfection of development. When this implication is understood the great majority of persons (except those of an ascetic type of mind) reject perfection of development as the ultimate end of life and action. Asceticism is to be regarded as an inversion of the ordinary relation of sensations and feeling whereby the ascetic obtains maximum pleasure either through self-esteem,

¹ *The Relation of Economic Science to Social Progress*. Indian Journal of Economics, Vol. I, pp. 187-203.

by acting in a manner opposite to the great majority of people, or through an unusual type of emotion—a variation from the norm which has no survival value. I maintain that the ultimate aim of social action cannot possibly be evolved from man's inner consciousness, but must be determined as a question of fact as to what end the great majority of people do actually have in view in making proposals for social improvement. I think many of those who urge perfection of the race in mental, moral, and every sort of development, often unconsciously assume that such perfection will be accompanied by greatest happiness. It is unquestionably true that the attainment of greatest happiness does involve a very much higher standard of physical development and health, and a continual development of all the mental and moral faculties to far higher standards than we can yet conceive; but the development is not in this case towards a purposeless ideal of perfection, but guided at every stage by a most definite criterion—the question whether, on the balance, the happiness of the people will be increased or not, proper weight being given to future as against present enjoyment. There are others again for whom the ultimate end is the attainment of a higher spiritual life. But on analysis, what is spiritual life but one in which thought and emotion are on that elevated plain wherein they conduce most to the happiness of others and of oneself?

The evolutionist might urge with some show of reason that the aim of social endeavor should be to make all activities, including Government measures, conform with the laws of survival and progress, as ascertained to have operated in bringing the western nations to their present civilization. Thus would further evolution be stimulated and consciously aided.

Happiness would be recognized by the evolutionist as a legitimate aim, though not the sole end, because it has survival value. He would adopt as a more important aim the ideal of perfection of development—physical, intellectual and moral—with a view to maximum efficiency in wealth production and social combination for peaceful enjoyment and for war. But then again, we are brought to the question—what is the goal of evolution? Amongst animals, survival value means multiplication of the number of one species at the expense of others, but always tending, according to Professor Lester Ward, to increase the total mass (weight) of living matter on the earth (*Pure Sociology*, page 114). If we were to regard the different races of mankind as necessarily bound to come into conflict when the pressure of population on the means of subsistence has reached a certain intensity, we should be overlooking the vast possibilities of economic progress and of extension of the preventive check on increase of population. If we were to accept as the natural course of human evolution that the more efficient races should dominate and prey upon the less efficient races, both by governing them and by directing and reaping the fruits of their labor, we should be adopting the Prussian view, which is repugnant to the majority of the civilized peoples. Social consciousness having extended to embrace the whole of mankind in all parts of the world, the goal of evolution is necessarily thereby altered. Growth of numbers is no longer an object, nor does military supremacy for the sake of conquest or wresting economic advantage remain an acceptable aim. When mankind shall have united to guarantee permanent universal peace, the only conceivable end of social regulation and activity will be the maximization of

happiness. Efficiency and perfection of human development will be cultivated with greater assiduity than at present—not as ends in themselves, but subordinated to the aim of happiness.

Probably we are as yet a long way from perpetual peace guaranteed by a League of Nations; and until such an organization has stood the test of more than a century without failing it would scarcely be wise for nations to overlook the possibility of having to defend themselves or at least fight for the League. Consequently for a long period yet efficiency in war must be an aim of social and political policy to be co-ordinated with the aim of directly maximizing happiness.¹

The conclusion to be drawn is that for the present the statesman's aims in his more direct measures of legislation, education, and works, should be the maximization of happiness in conjunction with securing the national defence, and that the development of physical and intellectual efficiency in the people should be pursued in directions leading to both these ends. This analysis leads to a conclusion which is perfectly clear and logical. The direction of policy towards the broad ends just indicated is certainly practicable and the aims such as will be acceptable to the people. Moreover it has the advantage that it is merely continuing evolution in the same direction in which it has hitherto been guided by the principle of survival. We are simply adding consciously the factor of reasonably determined social control, which is itself evolving rapidly from application to disconnected reforms to a grand assumption of responsibility for the whole life of mankind.

4. *The Ideal Population.*—The broad conclusions as to the ultimate aims of social activities stated in

¹ See my *Relation of Economic Science to Social Progress*, Indian Journal of Economics, Vol. I, p. 201.

the foregoing paragraph, if they are to be of use in legislation and economic development need to be brought into closer relation with the facts concerning the condition of the various peoples of the earth, and the known social and economic forces which are at present moulding their growth. We need to have not only an abstract end in view, but a concrete ideal for each country or part thereof. For this reason I shall try to sketch here the main characteristics of the ideal population towards which controlled evolution may carry the people from their present state. My description will apply first of all to western countries, and I shall afterwards discuss whether the ideal for India and China should be in any way different. I shall attempt to indicate the more important differences in the method necessary to reach the goal in these great countries of ancient but stagnant civilization.

The ideal population will be highly advanced in its economic methods, applying capital and labor-saving devices upon a scale not yet realized even in America. Thus it will be wealthy, but the wealth will be more evenly distributed than it is at present in America or Europe. This will be achieved in two ways—partly by the control of population and partly by industrial education combined with state regulation of industry. It is impossible to overestimate the importance which will come to be attached to birth control; and, by such aids as science can render, the eugenic ideal will be reached, that no children should be born that cannot properly be provided for either by their parents or the State. This will be achieved by the education of public opinion through Government-aided research and propaganda; and it will be unnecessary to apply compulsion except to a minority of recalcitrants—say, only about one per cent of the

population, and to prevent transmission of congenital diseases, and possibly to prevent immigration and multiplication in the country of races with a lower standard of living.

The social ideal of Robert Owen, which received a new interpretation with moral sanction by Ruskin, and is being elaborated by many thinkers and social innovators to-day as what Professor Geddes has termed the neotechnic order, will have prevailed. Instead of the confusion and waste of competition and the struggle for existence, society will consciously organize itself. The state, through the central government and local authorities, will take responsibility for the welfare of the inhabitants. Education will give children right ideals of life—a strong character, just moral conceptions, and ambitions, as well as the intellectual capacity to strive successfully for the chosen end. The state will see that no person able and willing to work goes without the opportunity, work on public amenities, paid at, say, two-thirds of trade rates, being provided for all persons out of employment. The labor exchange system will have undertaken the control and provision of all special technical and trade education. The sanitary conditions of life will have been revolutionized—slums being abolished, all cities town-planned and conforming to the garden city ideal. This will result not only from state action, but from the development of social responsibility of aristocrats and plutocrats. We shall probably always have an aristocracy of intellect and wealth, although the inequalities of wealth will have been greatly modified by abolishing unearned or “windfall” profits.

Thus the ideal population will not be numerous, increasing probably less than one per cent per annum, but evenly from the higher and lower classes. It will be

wealthy even by the American standard, largely from the profits and economies of the vast public domain—capital sunk in public works of every kind and in state-owned commercial undertakings in all the great standardized industries. But its wealth will mean far more to it in happiness, for it will have health and leisure, and it will know how to enjoy wealth with highest intensity by the cultivation of art and every form of refined enjoyment. It is a generalization from history that the highest culture has arisen where nature has been exceptionally bounteous in agriculture, or the profits of trade have been concentrated.¹ With the intensive economic development I am portraying wealth can become everywhere so abundant that its enjoyment by a limited population will permit the highest cultivation of the arts and sciences in any region. But society will need to make dispositions to secure this result, or at least to see that it is attained without many years of unnecessary delay. A rapid increment of wealth in any country almost invariably arises through the activities of the industrial and trading classes, who must work so strenuously that, in general they have no leisure for culture. They have no knowledge of culture and can have therefore no desire for it. This new wealth they can dispose for greater happiness only through sensual pleasures and excitement, and then they become coarse and vulgar. There is a real danger that coarseness and vulgarity may become the dominant note of the population which thus amuses itself without even knowing those forms of enjoyment which give intensest happiness. The greatest failing of public education has been the want of moral instruction; the next greatest failing has been a total absence of culture from the schools. In

¹ See H. J. Fleure, *Human Geography of Western Europe* (Williams and Norgate), pp. 29, 69, 121, 131.

the furnishing of the schools the art craftsman is taboo; the teaching of drawing is mechanical, no artistic sense being inculcated. The ideal population will see that all those who have the opportunity of obtaining wealth will know how to use it to their own and other people's advantage. In manifold ways, therefore, will the people of the future be healthier and happier, and more efficient for every good purpose. But the necessary foundation of all such wonderful progress is limitation of population and greatly increased economic productivity.

This is not the place further to discuss the control of population. My present purpose is to indicate that economic development proceeding from an ordered plan of public works and government measures is the necessary economic basis of progress to a state of higher culture and happiness; and that the development measures themselves should be planned with their cultural effects always in view as well as their directly economic effects. From one point of view economic activities may be regarded as superficial, for they merely provide the material means of subsistence and enjoyment of life, whilst the full culture of the art of life requires much else besides. Yet a truer view sees all the activities of life interwoven with one another, and finds possibilities of cultural elements even in the commonest and humblest acts of daily life. The indigenous civilization of Japan realized this ideal more fully probably than that of any other people in any age, with the possible exception of ancient Greece.

The influence of the beautiful is always towards emotional elevation and spiritual refinement. Artistic beauty is thus a great agent of culture and of progress towards true happiness. The beneficial influence of a beautiful environment, whether natural or artificial,

is indeed so widely appreciated that it is strange that in the execution of public works this condition is either wholly neglected, or sought to be satisfied by meretricious ornament. Perhaps it is due to civic apathy, but I think more to the fact that mechanical ideas have at last completely conquered our school-masters, from highest to humblest, both in Europe and India. May they soon learn what they have lost!

In all constructional works, public and private, artistic expression is possible: differently, of course according to the character and individuality of the work. In main roads it will be largely the choice and disposition of the trees, the design of bridges, culverts, and milestones. In railways the British locomotive engineer has shown what can be achieved in softening the hard lines and angular projections characteristic of "uncivilised" machinery. What might not be done to relieve the tedium of railway journeys by proper attention to artistic merit in station buildings, platforms and signals?

The ideal population, then, would not be content to live within and beside the æsthetic horrors of the mechanical-imperialistic age. A hundred years hence scientific economic development will have made the population so wealthy that they will be able to sweep away in disgust such of our hideous erections as still remain. The refining influence of the environment will be given its full weight.

It must not be supposed that this would lead to any dead level of uniformity; rather, the reverse. In the ideal population there would be greater variety, as well as greater tolerance. Uniformity is a fetish of the mechanical-imperialistic age, and is enforced in a thousand ways both by law and convention. One of its most pernicious products is the uniform curricula of schools prescribed by a central Education

Department, which give no incentive to or scope for individual initiative; and another the English urban building bye-laws, which have caused the erection in every growing industrial town of miles upon miles of dreary monotonous streets of small houses for workmen—perfectly straight, perfectly engineered (on the surface), but without a blade of grass or the semblance of a tree, and with no individuality for any house, but its number.

Variety on the other hand is the very breath of life. Variation is an essential part of organic evolution; and freedom to be unusual and act differently from other people, to experiment freely in new and old ways of doing things, is absolutely essential to a healthy and progressive national life. Governments should remember this in the spheres both of legislation and of service.

In the services of Government, whether educational, sanitary, agricultural, or others, it should be comparatively easy to provide for variety. If the need were adequately realized the extra expense involved would be easily overcome. It is perhaps more difficult to get the official type of mind to realize that it should be his duty to allow and assist individual initiative to break away from traditions and regulations, to encourage people to undertake serious and well intentioned efforts in any ways desired, novel or old fashioned, advising as to continuance only according to the ultimate results. It is worth while risking many failures and eccentricities in order to get individual initiative striking out in many different directions. The task of Government should be sympathetically to stimulate, assist, watch and record the results of all methods which people are using, whether well tried or experimental. This principle applies in education, medicine, agriculture, industries, and almost every type of Government service.

Progress to the Ideal.—It is impossible to deal adequately with the many and deep problems involved in securing the progress of mankind towards the happier state pictured in the last section; but it seems necessary to indicate in brief outline the opinions which I have come to hold on this subject; because they cannot but affect the nature of the proposals and recommendations which I make in regard to measures of economic development.

It would seem that in actual fact progress results from two totally distinct causes—one of these being egoistic, though usually just, namely the discontent of an economically dependent proletariat exerting itself by political pressure; and the other altruistic, namely activities of persons who seek to benefit their fellow-men and who either think or plan for them, or teach them and direct the carrying out of reforms. In the present constitution of society both these causes are undoubtedly necessary to secure definite changes of public advantage.

The discontent of a proletariat is usually ascribed to rising cost of living; but whilst this certainly is one frequent cause of industrial unrest, the phenomenon of bitter discontent persisting in spite of increases of wages more than counterbalancing the increased cost of living, shows that the most important cause is to be found in deepseated psychological reactions.

Broadly stated, the primary cause seems to have been the industrial revolution whose effects in two distinct directions have combined to produce a peculiar psychological state—a spiritual starvation of the proletariat. It is against the unnatural conditions of their lives, in an unhuman, unsatisfying environment which they are powerless to change, that they revolt. The gradual economic triumph of the industrial revolution led during the nineteenth century to the permeation

of all thought and action by the ideas of the chemico-physical sciences. Applied through engineering and factory practice in a thousand prodigiously successful ways, these mechanical ideas have come to direct every thought and plan of men of action. There has been no concurrent study of mankind—his wants, his feelings, in their infinite variety characteristic of every organic growth, every natural species. Furthermore, the industrial revolution has had a centralizing tendency through the extraordinary improvement of communications. This has operated in the economic sphere to aggregate capital under the central control of large companies or combinations; and in the sphere of Government it has meant the centralization of control and, to a great extent, of initiative for the whole country in the metropolis.

I have already referred above to the uniformity of our State controlled system of education modelled by a code of such a character that the small degree of freedom left to teachers is of little use to them. In fact they have all been trained according to one model in training colleges, which are also to a great extent designed and run according to standard type. I have also referred to the effects of the building bye-laws in producing miles of straight monotonous streets, well paved and drained, but with no sign of plant life or anything to redeem their harsh ugliness. It is such education and such repressive surroundings of daily life which cause industrial unrest and many deplorable social evils. The individual feels that he is being compelled both to work and live in a distasteful manner according to uniform rules decided for him by forces too strong for him to resist, baffling even the power of united labor. In one country he blames the "capitalistic system", in another the Government, in most countries both more or less. Yet neither

Government, nor "capital" is consciously responsible. They are to some extent class selfish, but on the whole well meaning. The trouble is that their knowledge and their outlook is mechanical—the Government officer believes that there must be one right method for each purpose, and he thinks in statistics. The great employer of labor thinks in output of coal or steel rails: of human nature, its perplexing varieties, and complex needs he is completely ignorant. Yet it is such persons in authority in Government and industry who give permanent concrete form to nearly all the newly created wealth of the country. The most crying need of the times is to have such persons educated to human knowledge on a scale commensurate with their responsibilities: otherwise control will be wrested from them by those who suffer. To educate our future governors and capitalists in the requisite knowledge of their fellowmen we must so re-arrange our school and college courses that the human studies of natural history, historical geography, of local arts and crafts, and so forth may be suitably combined with the necessary mechanical studies of the present curriculum, the tedium of which they will relieve by exhibiting numerous applications of their principles.

Altruism, the second great force making for progress, is fundamental in the teaching of Jesus Christ, and may be termed "brotherly love". In sociology it is recognized as an important survival factor for a tribe or race. When fully developed altruism leads to social consciousness and a poignant sense of social responsibility which spurs a man to action on behalf of his fellow men. Social reformers are thus actuated; and the problem of creating an altruistic motive force for progress turns upon initiating a propaganda in favor of service and a sense of responsibility for the happiness of others.

The two great forces tending to promote progress are, therefore, discontent of the proletariat and altruism amongst the intelligent and wealthy classes. The effectiveness of these forces in [actually securing better conditions of life will depend upon two factors: (1) the extent of the understanding and acceptance by the government and people of progressive change as a normal condition of social activity; (2) the extent of knowledge of what changes will be beneficial and how to carry them out so as to secure beneficial results and avoid harmful results, such, for example, as damaging another class of persons, or incurring financial losses.

The first of these conditions of effectiveness could be best secured by a combination of a propaganda amongst adults with definite instruction in secondary schools on social economy, which would be largely devoted to ideas and methods of social progress. The second factor involves not only the diffusion of economic and financial knowledge, but also the extension of geographical teaching in a comprehensive scientific manner, particularly regional and anthropological studies—of the relation of town and country, of occupations to the physical character of the terrain, and of the laws of evolution of man in qualities of temperament and intellect with the progressive changes of economic selection. There is still much investigation to be done in these subjects; but scientific geography and elementary ethnology should be taught in every secondary school. The public may then realise the importance of these studies for the proper direction of measures of economic development and social reform; and may become willing to entrust its future progressive measures to the guidance of experts learned in the human sciences.

When the twin arts of economic development and social progress shall have become definitely recognized and established upon the bases of their respective sciences, then will become clearly revealed what differences of methods, if any, are needed for the advancement of different races. It is easy to adapt economic development to the differences of climate and physical features of various countries. In like manner the differences in the customary articles of consumption, and of the traditional methods of agriculture and crafts, should be kept steadily in mind. The principles of development and progress would appear to be the same for all races—Indian and Chinese equally with European, but the most advantageous applications may vary widely according to ethnic and historic conditions which need close investigation. Ultimately such investigations, and the consequent recommendations and education of their countrymen, will be most fruitfully made by members of those races themselves, when sufficient numbers are fully trained in the methods of research in the human sciences. This indicates the importance of especially directing higher learning at the Indian and Chinese universities to studies in geography, sociology, and all the human sciences. Research in the physical sciences is already so far advanced in Western countries, and progresses with such increasing momentum, that the most promising field of original investigation in the Orient is the study of mankind as there residing.

(To be continued)

SOME NOTES ON THE PRACTICE OF CO-OPERATION

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Statistics are apt to be delusive unless read with the limitations inherent in them. Figures have a habit of fostering an atmosphere of pleasant complacency especially when they register the numerical manifestations of a progressive movement. It is often forgotten that numbers as such cannot measure moral values, that they have always to be interpreted in the light of precise understanding of the ideas underlying them.

The annual reports on the progress of the co-operative movement issued by the provincial registrars seem to relate happy tales with only minor tragedies here and there which generally have a moral and an explanation attached to them. The result is not infrequently a facile optimism in the mind of the public, for do not the swelling figures of societies, members, deposits and capital justify the belief that the Indian peasant has now grasped the blessings of co-operation, and that strife is giving way to harmony, slowly but

surely, in the sphere of village economy? The co-operative movement has doubtless made great strides during recent years, but the question is: How far do the statistical returns in the appendices of annual reports indicate the progress of co-operative principles of self-help and enterprise, honesty and mutual trust? In a word, is the moral value of co-operation better realised than before? The answer to that must be sought largely in personal impressions, and I put them down for what they are worth.

The touching stories of enthusiasm for agricultural improvements, enterprise in using purer cultures and better implements, of self-abnegation and generous interest in education, which often adorned the pages of earlier contributions on co-operation, will be found illustrative more of the large-hearted endeavors of conscientious officials and non-official enthusiasts than of elevated morality spontaneously welling out of the rural societies. Primary societies have in fact hardly begun to understand co-operation as anything more than a beneficent institution meant by the Sarkar to make them cheap advances. Unlimited liability is but dimly understood, if at all, by an average society, and is yet hardly felt as an obligation. Every member is concerned to get as much as possible for himself, and so long as he succeeds in his objects, he does not care a bit, unless his jealousy or pique is touched, whether his neighbor has secured an advance commensurate with his resources or requirements, and whether the advance is profitably spent or not. The panches fully realise the value of their dignity and help themselves generously out of the money advanced to the society. These high dignitaries do not in practice regard themselves bound as the rank and file, by petty rules such as those of punctual repayment of loans, and utilising them for the objects for which

they were taken. The co-operative movement has doubtless succeeded in making a much larger supply of capital available at cheaper rates of interest for the agriculture of the country than was previously the case. But it must be remembered that the rate at which advances are made by primary societies is by no means very low, and works out at an average of 15 per cent. Notwithstanding the rapid increase in the number of societies, the amount of working capital, etc., the transplantation of co-operative principles has been disappointingly slow. The first co-operative act was passed in 1904. After fourteen years of official nursing the movement has not advanced to the stage of being made over with confidence or any prospect of success to the people themselves. There are yet in fact no signs from within of any spirit of independence. The wind is blowing in the opposite direction altogether—to make the official control more detailed and more exacting with the accompanying demand for special privileges, the object being to guard the society from the dishonesty or surreptitious extravagance of its members. To-day if the official patronage or even the official interest were to be withdrawn, I am not sure whether the co-operative movement too within a few years would not come to be regarded as one of the past glories of ancient India.

The artificial health and constitutional weakness of the co-operative movement appear to lie in the fact that the most important work—the work of organising the primary societies—has to be done for the most part by the low-paid staff of central or district banks or by men provided by the co-operative department. These pioneers themselves have but a faint understanding of the principles underlying the movement and are not always men of unexceptionable character. They regard the work more as ‘duty’

rather than an object of social amelioration, or a cause worthy of any special enthusiasm. It is in the preparation of the register of assets—*haisiyat* registers as they are termed in the United Provinces—in the selection of the first members that the most fateful steps regarding the future of a society are taken. And here the foundations are not laid, emphasis is not put on the moral duties and obligations, but on the exaggerated benefits of cheap and plentiful loans; but the new co-operator soon discovers that even these advances are not so generously forthcoming as he hoped, and then his new creditor seems to be uncomfortably insistent on punctual repayment of loans.

One of the indisputable results ascribed to co-operation with a glow of satisfaction is the diminished rôle of the moneylender in the village economy. But it is no wonder that with the priority of debts, the unlimited pledging of resources and various legal and official favors shown to co-operative bodies the *mahajan* does not think highly of the credit of members of rural societies. And yet the *mahajan* remains as indispensable as ever. The needs of the indigent peasant are manifold and inexorable. He wants money for marriage and mourning celebrations, the importance of which looms larger than even the recurring needs of his holding. After all if God be willing, the crops will be all right. There is generally available a sufficient supply of some sort of seed and always the unstinted labor of the cultivator; and these suffice to provide for the irreducible minimum of agriculture in India. And then the reckless joy of wedding and funeral feasts relieves the monotonous tedium of the peasant's existence, and none but the moneylender is prepared to finance him adequately for the purpose. Co-operation aims at

capitalisation of honesty and personal character, and that is feasible only with the fullest liberty granted to primary societies in assessing the *haisiyat*—the assets—and fixing the loan-requirements of their members. This however presupposes capacity and above all rectitude and impartiality among the co-operators, which again leads back to the foundations. The present tendency is all towards centralisation and concentration of power in the hands of central banks which receive, scrutinise, and adjudicate on applications of individual members for advances. The panches are left powerless and consequently irresponsible, not very unlike the mukhias or the village headmen in the U. P. As a consequence of their position they may get a larger share of the loans than they would otherwise do and as they are expected to be responsible for punctual collections from the rest of the members, they exercise a certain influence which is not always beneficent, for the example that they set themselves is usually not edifying.

The spirit of genuine co-operation cannot take root in a population so poor and ignorant as ours unless more enthusiasm, a livelier sense of social service and a keener perception of agrarian needs is forthcoming in the organisation and control of primary societies than can be expected from official direction. The official agency has done the pioneering work, but is now inadequate for purposes of further educational and propagandist duties. The outside public must be invited to share the burden, though I know how difficult it is to rouse the interest of that body of many hopes and more disappointments. But it must be done if the co-operative movement is to be vivified. And I have no doubt that there is ample spirit of social service and generous interest among our youth which with proper guidance and right counsel can be

directed in helping the march of a national and most beneficent movement. At any rate it is worth while trying to attach co-operative training classes to high-schools and colleges and make a serious attempt to enlist the sympathies of the student community. Bombay has set an admirable example by opening a training class under the leadership of Mr. Deodhar of the Servants of India Society, and inaugurating a co-operative institute principally for purposes of study of co-operative problems. Above everything else I would like to see compulsory instruction in the elements and general methods of co-operation for all teachers of primary schools. It should be the duty of District boards to recognize the work of school-teachers in organising new societies and developing old ones by means of small rewards. The central banks may also with advantage pursue a similar policy. Besides, in the present state of literacy it will be specially and mutually profitable to employ the teachers as accountants or secretaries of primary societies. The percentage of societies in a position to undertake the accounting work themselves is still negligible. I not only look forward as a result of the employment of the school-master as a propagandist and a paid servant of a primary society, to a slow infiltration of co-operative principles, but also to the society becoming in time self-dependent. The system of employing a secretary or an itinerant clerk on Rs.10 or so for a group of three or four societies is obviously unsatisfactory. The unnecessarily large number of registers and the complicated system of accounting in vogue among rural societies make it beyond the knowledge and intelligence of literate cultivators to take over the work themselves. I do not understand how the existing mountain of account registers came into existence and why the question of reducing it to reasonable dimen-

sions has not yet been seriously faced. The problem does not appear to require more than a little diligence and the use of more than average intelligence. In a world of illiterates it would not be surprising if the man familiar with their accounts assumed also the management of their concern. It is neither his interest nor his business ever to initiate the members into the mysteries of his *métier*. Though the secretary is paid by the societies, he rightly regards himself as the servitor of the manager of the central bank who wields the power of retaining or removing him. Being under no responsibility to the societies he comes to regard himself as their master and gives himself unjustified airs—not an uncommon failing of the subordinate staff in India. He has a powerful voice in the distribution of the advances secured from the central bank among the members, and not being dependent on their sweet will has but scant respect for their opinions. I propose that in any case he should be directly paid by the societies—his real masters, and not by the central bank indirectly according to the current practice.

The school-master on the other hand, living in the same village as the members must depend on their good will, and is bound to be more amenable to their control than the itinerant accountant. The members are likely to acquire greater familiarity with their society and its management by constant intercourse with their teacher-accountant who in his turn will appreciate the addition of Rs. 2 to Rs. 5 as a reward for his co-operative labors to his meagre emoluments for pedagogic activities. I now pass on to the direct relations between the central bank and its primary societies. The frequent auditing and supervisions by the central agency is all to the good of village-banks, but care must be taken not to meddle

in details and treat the panches and the members as children and deprive them of their legitimate powers of management. The warning would be superfluous, had not the tendency been towards undue centralisation. The management of societies will never be effective and democratic unless the panches are invested with real responsibility, and are made strictly to conform to the rules as to punctual repayment of loans. The personnel of the panches should be periodically changed—retirement by rotation may be followed, and arrangements made for the speedy removal of defaulting panches. It is not usually realised to what extent the panches set the tone of a society, and make or mar its future. The duties of panches faithfully discharged are far from pleasant, and it is necessary that the burden should be shared at regular intervals, and that honest and devoted work be recognized suitably at the annual meetings of the central bank. Nobody should be allowed to continue as one of the panches for more than two consecutive terms of office, that is to say, from two to four years according to local conditions and bye-laws. Probably the most general defect in the management of central banks is the mechanical and narrowly rigid adherence to the records of assets or the *haisiyat* registers in making advances to societies. It is inevitable that the bank must base its decision as to the loanable amount principally on the information supplied by *haisiyat* registers. But the character and past history of a borrower should also receive consideration, especially at the hands of a co-operative bank. The *haisiyat* registers are notoriously unreliable, and even where that is not the case, they need revisions at short intervals to be kept up-to-date. And this is by no means an easy task, and I do not know of any other means of effectively accomplishing it than by making

the societies themselves responsible for the correct information regarding their assets and liabilities. A borrower will not of course exaggerate his liabilities and minimize his belongings. But I do not think it will be beyond the staff of the central bank adequately to check and allow for the element of the unreal in dealing with a society. In any case, if the responsibility of the panches is strictly enforced, I expect it would be possible to get much more reliable *haisiyat* statements than is the case at present. The foremost requisite in all this is the inculcation of sound principles at the very birth of a society. If the villagers are made to realise the meaning of unlimited liability and are not led to entertain extravagant dreams of the benefits of co-operation, they will be found to give more trustworthy information regarding their actual economic conditions. The general complaint at present is that all societies are treated indiscriminately alike by the central banks in the matter of advances, and that the management of the banks are apt to regard it as their duty to distribute the available funds among the societies strictly in proportion to their recorded *haisiyat*. It is for the directorate and the working committees to see that such an easy-going attitude, fatal to all progress, is not adopted. It is far better to have a few reliable debtors of unexceptionable moral and material solvency than to have many borrowers of doubtful security. Co-operation aims at evaluation of the moral assets of a man, and the test of success lies in the extent to which this principle is translated into actual practice. It is not the business of central banks to adjudicate on the merits of applications of individual members of societies, but only to deal directly with the latter. The panches must be left to judge the credit and the needs of their members, and if they are deprived of this fundamental respon-

sibility of theirs, which is not infrequently the case, there is very little difference in the character of loans from central banks and *tagavi* advances from the Government, except that in the former the sureties are not entirely cognisant of their liability. If a society fulfils its obligations regularly and honorably, it is but wise that the central bank should try to meet its requirements to the utmost degree possible, and not pursue the good old tactics of the market-place of offering half the amount asked for. It is not business but folly, and has the effect of reducing all the societies to the level of the bad or the indifferent.

India is a land of traditions, and nowhere is the tradition of officialdom more rampant than in this country. The official looms larger than the object for which he exists. Co-operative institutions have to guard against the growth of superfluous multiplication of low-paid subordinates. The applications of societies for advances should always be dealt with directly by the management on their merits, and never on the recommendations of secretaries or supervisors. The relations between the bank and its clients must always remain warm and intimate, and never lapse into official formality. For this purpose it is better to limit the sphere of influence of a central bank than allow it to extend its operations everywhere within the extended boundaries of a district, even in corners where supervision is difficult or impracticable. Central banks often forget that the loans to be utilized to the best advantage need to be advanced at the proper time; and I think the practice of banks falls in this respect very far short of their professions.

A word about the working of executive committees of central banks. In India it is extremely difficult to persuade the directorate to exercise any influence

on the management. They are usually more ornamental than useful. Still I believe it would be useful if the manager of a bank were to submit at the meetings of the executive committee monthly diaries of outdoor work and brief general reports on the working of the bank shorn of figures that are supplied for the edification of the co-operative department.

A NOTE ON SOME ANOMALIES IN THE CURRENCY OF HONGKONG

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The currency of China is of great interest to the theorist, for it contains examples of almost every type of money known, and suffers from most of the diseases to which a currency may be subject. Some at least of these diseases appear to be contagious and on that account the currency of the Colony of Hongkong has not shown that regularity which the British reputation for financial sagacity gives us a right to expect. Some of these irregularities are probably disappearing for good, but there is reason to fear that others are more deep-seated in the system, and will persist until radical alterations are made, not only in the currency regulations of Hongkong but also in those of China.

In theory Hongkong has a silver standard. Both the Mexican and the Hongkong dollar are unlimited legal tender. There are fifty cent pieces, and baser tokens of twenty, ten, and five cents; there is also a copper coinage of one cent pieces, and a mixed

mass of Chinese cash for the use of the poorer classes in the petty transactions of the market. The effective currency for all transactions of any magnitude, and even for ordinary purchases of more than a couple of dollars, is the note issue. This is in the hands of three banks, the Hongkong and Shanghai Bank, the Chartered Bank of India, Australia and China, and the Mercantile Bank of India. Of these the Hongkong and Shanghai Bank alone issues notes of the denomination of \$1, and it issues by far the greatest quantity of notes of all denominations. The anomalies to which attention is drawn arise in the various markets which deal with this currency. These markets are the money-changer's market, the foreign exchange market, and the tael market. For the second and third of these the foreign exchange market of Shanghai is extremely important.

Scattered throughout the city of Victoria there are a great many Chinese money-changers, who have a regular market in which they fix the rates at which all these constituent parts of the currency exchange, and also the rate of exchange with Canton. The following is a list of the prices which they fixed on a certain day in 1916, and it illustrates some of the anomalies to which attention is drawn. This list of prices will repay study.

Hongkong :	20 cent piece at discount of	\$ 83.00	per \$ 1,000 paper		
	10 " " " "	" 82.00	" " "	"	"
	50 " " " "	" 85.00	" " "	"	"
Hongkong Silver Dollar		" 12.00	" " "	"	"
Hongkong & Japan Chopped Dollar		" 84.50	" " "	"	"
Clean Mexican Dollar		" 21.00	" " "	"	"
Old Mexican Dollar		" 18.00	" " "	"	"
Chopped Old Dollar		" 28.00	" " "	"	"
and we may add, for the copper exchange :—					
9 one cent pieces for 1 ten-cent piece.					
9 copper cash for 1 cent piece.					
Canton :	20 cent piece at discount of	\$ 180.00	" " "	"	"
	10 " " " "	" 160.00	" " "	"	"
Canton Silver Dollar	" "	" 22.00	" " "	"	"

In the first place it will be noticed that the common denominator is the paper money. All agios are reckoned in that basis, because the accounts at the banks, the debts in books, are all, by convention, understood to be payable in Bank notes. It will be seen that the subsidiary coins were at a discount compared with the silver dollar, while the latter was at a discount compared with the note.

At a later time, illustrated by Fig. 2 (p. 379), the dollar was at a premium compared with the note: subsidiary coin, too, once enjoyed a premium over the note and the silver dollar. These are the anomalies of which we have to attempt an explanation.

The second market, that in Foreign Exchange, is formed by the Hongkong bankers for the exchange of gold and silver credits. The brokers who rush from bank to bank quoting offers and demands at varying rates constitute the mechanism by which the market equilibrium is established at a price which "clears the market". Every bank receives telegrams from other silver markets, notably Shanghai, and buys or sells on the information thus obtained. In this way differences in price between Hongkong and other centres are more or less completely arbitrated.

The merchants also form part of this market. They come to the banks to cover the risk of loss on their transaction as a consequence of the vagaries of the exchange. Some want to buy, some to sell gold. Their wants are balanced against each other in the market, together with speculative accounts and the private requirements of the banks acting for their agencies elsewhere. The banks aim to cover the daily aggregate of their buying transactions by sales at as good a rate as possible, but this is not an easy task as the market is very lively at times and there is much outside speculation, mostly harmful. The

prices made in this market are usually quoted in the following form:—

OPENING EXCHANGE

Monday, 4th, January, 1915

SELLING

T/T.	...	...	...	...	1/9
Demand	...	...	...	...	1/9 $\frac{1}{16}$
30 d/s.	...	...	...	...	1/9 $\frac{1}{8}$
60 d/s.	...	...	...	...	1/9 $\frac{3}{16}$
4 m/s.	...	...	...	...	1/9 $\frac{1}{4}$
T/T. Shanghai	...	...	...	...	78
T/T. Singapore	...	...	...	...	75 $\frac{1}{8}$
T/T. Japan	...	...	...	...	86 $\frac{3}{4}$
T/T. India	...	...	...	...	132 $\frac{1}{4}$
Demand India	...	...	...	...	132 $\frac{3}{4}$
T/T. San Francisco and New York	...	...	...	...	42 $\frac{3}{4}$
T/T. Java	...	...	...	...	106 $\frac{3}{8}$
T/T. Marks	...	...	...	...	Nom.
T/T. Francs	...	...	...	...	2.19 $\frac{1}{2}$

BUYING

4 m/s. L/C.	...	...	...	...	1/9 $\frac{3}{4}$
4 m/s. D/P.	...	...	...	...	1/9 $\frac{7}{8}$
6 m/s. L/C.	...	...	...	...	1/10 $\frac{1}{8}$
30 d/s. Sydney and Melbourne	...	...	...	...	1/10
30 d/s. San Francisco and New York	...	...	...	...	44 $\frac{1}{4}$
4 m/s. Marks	...	...	...	...	Nom.
4 m/s. Francs	...	...	...	...	2.30 $\frac{1}{4}$
6 m/s. Francs	...	...	...	...	2.35 $\frac{1}{4}$
30 d/s. on India	...	...	...	...	...
Bar Silver ready	...	...	...	...	22 $\frac{9}{16}$
„ forward	...	...	...	...	...
Bank of England rates	...	...	...	...	...

The thing which strikes the onlooker who stays in this market all day, is the great influence upon it of the Shanghai market; when the telegrams from Shanghai come in the rate is usually made afresh to suit the Shanghai quotation. Now the rate on Shanghai—the tael rate in the above list—would seem on purely theoretical grounds to be very important, as adjusting Hong-kong gold rates to the corresponding Shanghai rates. Theoretically it has a mint parity (\$100=71.5 taels) and it has silver import and export points. Yet the

rate is regarded as very uncertain and incalculable by the dealers in this market. The quoted rate is, in fact often nominal, and the explanation is that a considerable but almost unknown market in taels exists among the Chinese bankers, outside the European market. This outside market is only felt at times of exceptional activity in the movement of silver.

We have then the following peculiarities to account for. The subsidiary coins of the Colony after having been at a premium for many years went to a discount about 1906 and remained at a discount until quite recently. They are now at par. The paper money of the Colony, being promises of various banks to pay silver dollars, has been at one time worth less and at other times worth more than its face value. Both Fig. 1 and Fig. 2 show this discount on the silver dollar, or premium on the note.

The matter of the subsidiary coin is comparatively simple, and will be cleared out of the way first.

The subsidiary coin was at a discount at the time when this table was published, because too much of it had been made: yet when the process of making was at its height the coin was at par, or even at a premium, and disappeared as fast as it was put into circulation. The requirements of the Colony in subsidiary coin have been estimated at \$2,000,000, but the table on the following page shows the amounts put into circulation, prior to 1906, when the discount first showed signs of becoming permanent and heavy.

An enquiry was then set on foot and a Subsidiary Coin Committee was appointed in 1907, which reported that the depreciation was due to a large over issue of Hongkong subsidiary coinage, and also to the excessive circulation in the Colony of subsidiary coins struck at the Canton mint.

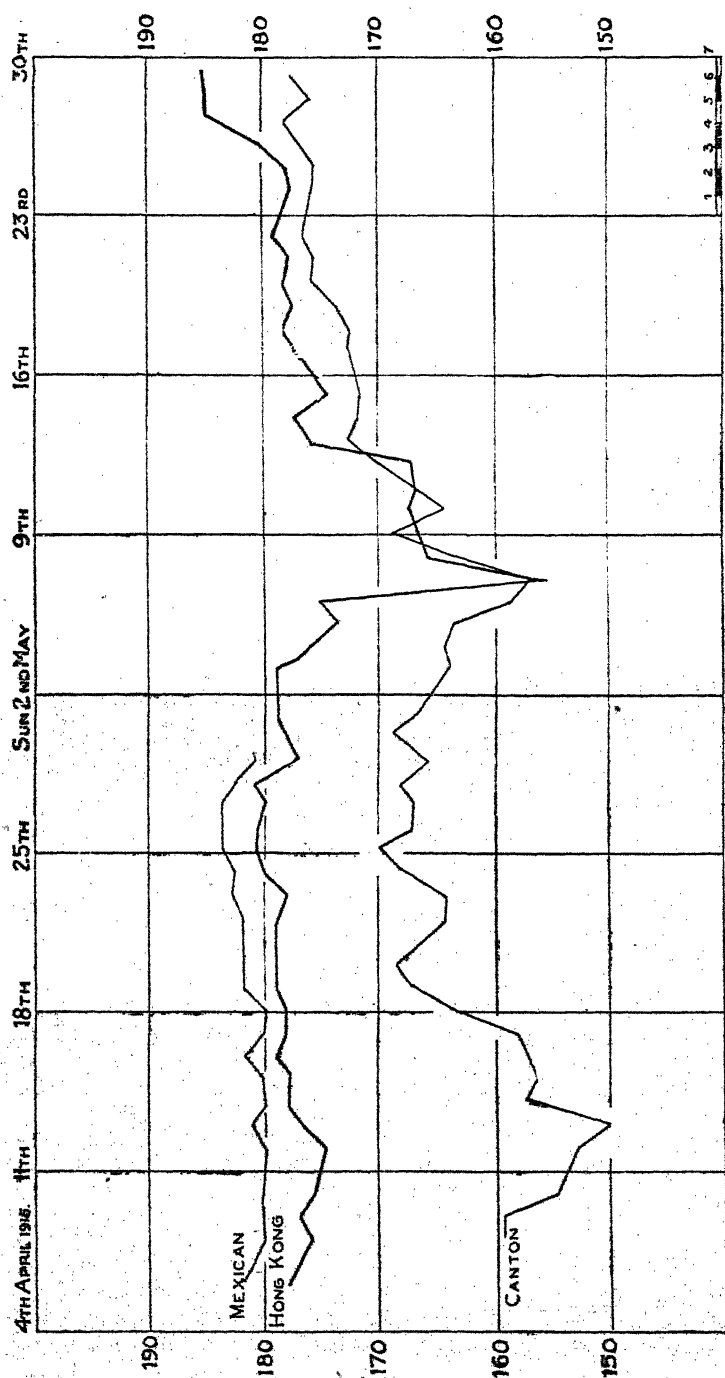


FIG. 1. DIAGRAM SHOWING DISCOUNT PER MILLE ON HONGKONG SILVER DOLLARS, MEXICAN DOLLARS AND CANTON SUBSIDIARY COIN.

In fact, the Hongkong Government had been supplying the neighboring Chinese province of Kwangtung with subsidiary coin, and spending the handsome seigniorage as current revenue, until the Provincial Government, realising the profits to be made, began

CIRCULATION AND PROFITS OF SUBSIDIARY COIN

Year	Approximate amount of H. K. Silver and copper subsidiary coins put into circulation up to Dec. 31st.	Withdrawn	Profit	Loss
To	\$	\$	\$	\$
1894	11,918,125.00	...	811,845.55	...
1895	13,750,125.00	...	152,600.88	...
1896	15,985,125.00	...	110,196.20	...
1897	18,485,125.00	...	115,015.91	...
1898	21,778,125.00	...	148,044.49	...
1899	26,888,125.00	...	168,553.25	...
1900	29,985,125.00	...	191,533.40	...
1901	33,271,125.00	...	188,515.90	...
1902	36,493,125.00	...	126,536.87	...
1903	39,788,125.00	...	76,440.18	...
1904	42,518,245.00	...	100,572.03	...
1905	43,604,205.00	...	41,880.00	...
1906	43,999,880.00	3,468,000.00	...	387,937.85
1907	...	Nil	...	Nil
1908	...	810,000.00	...	164,674.72
1909	...	820,259.04	...	76,863.17
1910	...	429,100.00	...	166,232.67
Total	43,999,880.00 5,527,459.04	5,527,459.04	2,226,234.66 795,757.91	795,757.91
Balance	38,472,370.96		1,430,476.75	

to coin its own dollars and subsidiary coin. The Canton mint was set up in 1888, but soon discontinued the minting of dragon dollars, turning itself to the more profitable and congenial task of minting subsidiary coin. Of all this subsidiary coin the most popular are the twenty cent pieces, which have now become the commonest currency of Canton. That minting went on, until in 1916 the twenty cent pieces were discounted almost to their rather uncertain

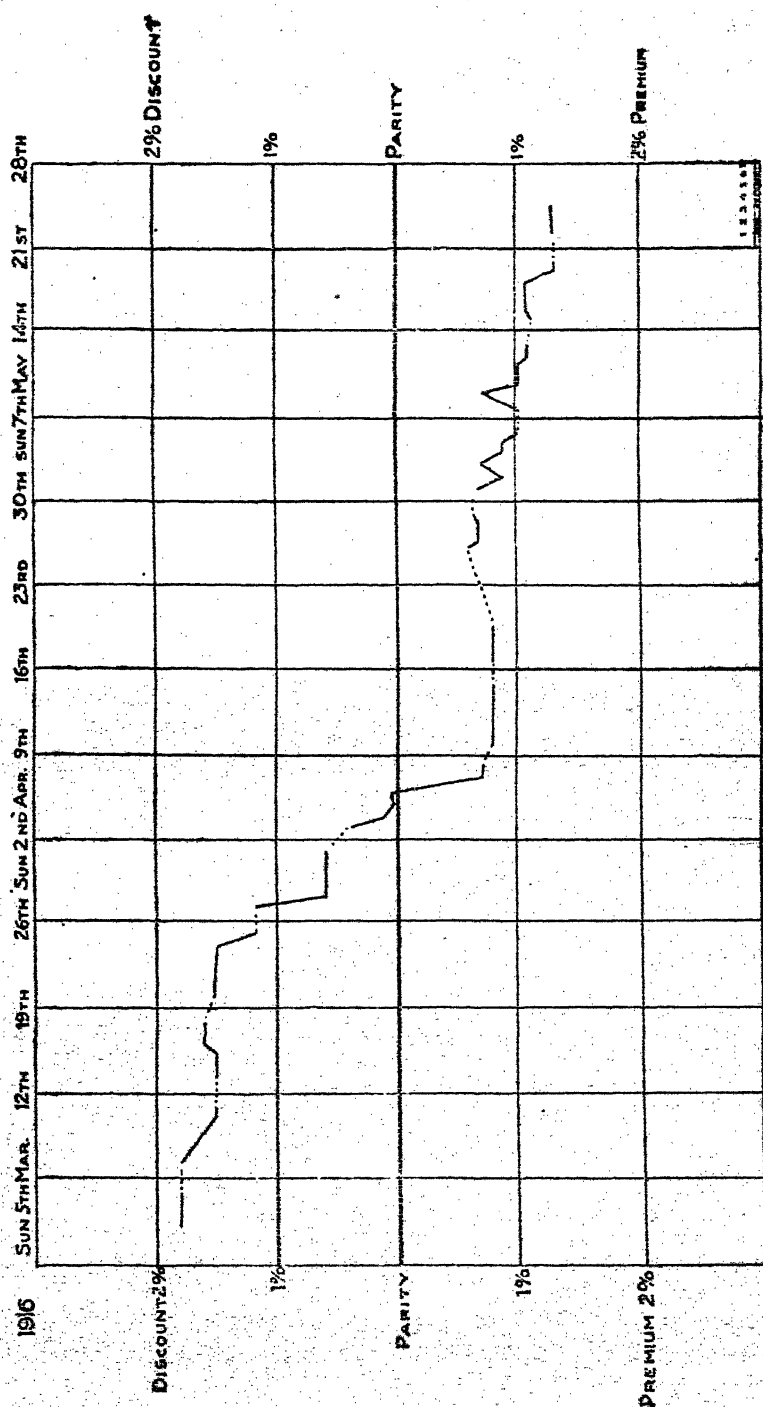


FIG. 2. DIAGRAM SHOWING THE DISCOUNT OR PREMIUM ON MEXICAN DOLLARS IN MARCH, APRIL AND MAY, 1916.

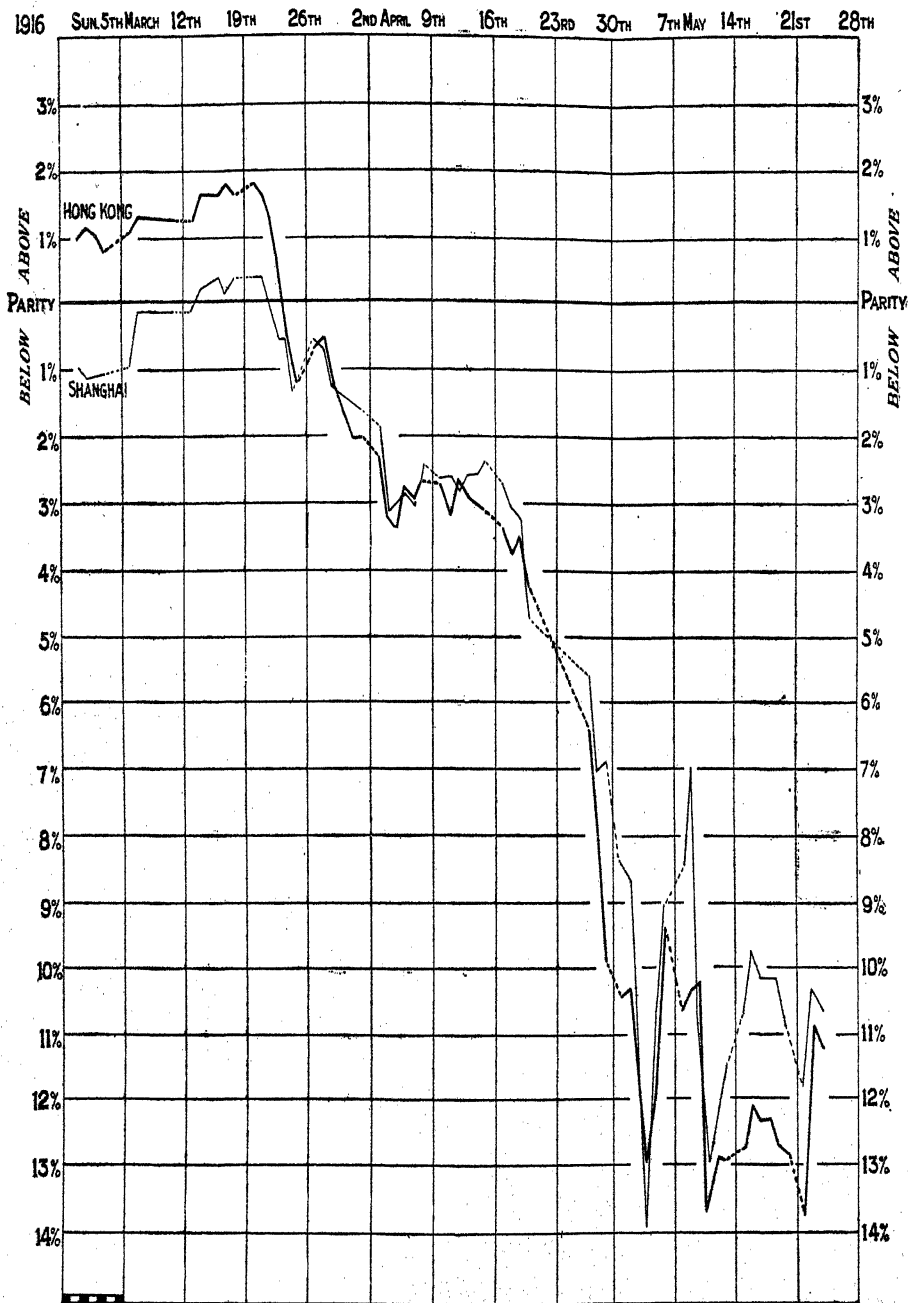
bullion value, and were even shipped to Shanghai as silver bullion when the price of silver rose in the summer of that year.

To return to the state of affairs in 1906-8: attempts were made to induce the Canton mint not to coin any more subsidiary coin, but these attempts were attended with very little success. The two subsidiary coinages continued to mix and to be used in both the Colony and the Province, and they continued to depreciate, the predominant influence being the amount of the issues by the Canton Mint. A somewhat half-hearted attempt to redeem all subsidiary coin which happened to be paid into the Colonial Treasury did not have any great effect upon the discount, and the subsidiary coin poured into the Colony from the Province fast enough to raise the rate again. It was felt that the time had come for more determined action. Accordingly the local transport companies refused to accept any but the Hong-kong subsidiary coin in payment. In doing this they were certainly within their rights, and they were thought to have the support of the Government. The consequences, however, were very curious, for the Chinese boycotted the trams. Free rides were given by the enterprising company in order to break the spell, and these rides were greatly appreciated, especially by the younger members of the community, but when any question of payment arose the boycott was as determined as ever. Finally, the Government stepped in, and secured powers by an Ordinance to divide the city into districts, imposing additional taxation upon the district which harbored the boycotters. At the most interesting stage of the struggle, when unwillingness to ride in a tram promised to become very expensive the oneself and one's neighbors, the boycott broke down, and

shortly afterwards, in June and July, 1913, the Legislature passed an Ordinance forbidding the use of notes and subsidiary coins other than those of the Colony. This Ordinance came into effect without difficulty, but did not remove the discount as some over-sanguine persons had hoped. Naturally it displaced the Canton subsidiary coin by a certain amount of Hongkong subsidiary coin drawn from Canton. Since then the Treasury has redeemed as much as current revenue would allow, with the result that the subsidiary coin is now almost at par. It is probably too much to hope that the subsidiary coins will always be exactly at par, for the Chinese have an inveterate habit of exchanging currencies, and there is a money-changer's market in all coins. Temporary scarcities of small coin may occur from time to time.

The fluctuations in the discount on the silver dollar are not so easily accounted for. We may refer to the two diagrams on preceding pages. Fig. 1 (p. 377) is the first of a series of diagrams we have made showing the variations in the discount on the Hongkong or Mexican dollars, and in the Canton subsidiary coin, the effective currency of that city. Of the latter it is not intended to speak at present, though it does vary in a most interesting way, and has some bearing upon our own currency. The discount on the Hongkong dollar is represented by the thick black line; discount on old Mexican dollars, which moves in close sympathy with the discount on the Hongkong dollar, is shown for the first month only. The second diagram (Fig. 2) refers to the months of March, April and May, one year later. It shows the number of Mexican dollars obtainable for one hundred dollars in notes, and the most interesting thing about it is the fact that the notes went to a discount in April after having been at a premium for a year.

DIAGRAM SHOWING PERCENTAGE VARIATION FROM SILVER PARITY OF THE HONG KONG AND SHANGHAI STERLING RATE



The inconveniences of this variation are obvious. When the paper was at a premium people who received silver dollars wished to deposit them at the bank, and then draw the amount of the credit thus created in the more highly valued notes. A visit to the money-changers for the equivalent in Mexican dollars and so back to the Bank again completed the circle of an easy road to wealth. Naturally the bank began to keep separate accounts for dollars and notes. The shops also put up notices refusing to accept payment of more than a few dollars in silver, the legal tender of the colony. Workmen demanded to be paid in notes. A promise to pay a dollar was worth more than the dollar which it was promised to pay. Now during the year March 1915 to March 1916 the T.T. rate, which is the price in sterling of Hongkong Bank Notes, or credits in notes, was above silver parity. In March 1916 it fell below silver parity, as the price of silver mounted higher and higher, and a little later, when the disparity was fluctuating about 3 per cent, the premium on the note disappeared, to give place to a discount. At the same time silver was exported, though we cannot show the amount as no official statistics of imports and exports were then kept. A comparison of Fig. 3 with Fig. 2 will show this close correspondence.

The Mexican dollar continued to command a premium until its exportation was forbidden on December 8th 1916.¹ Upon the enforcement of this regulation the discount disappeared and since then the currency has been practically normal, each part exchanging at par, or as near to it as those inveterate money-changers, the Chinese can bear to see it.

¹ The export of *British Dollars only* was prohibited on May 5th. Mexican dollars at once commanded a premium over British dollars and were exported. In August 1917 the export of silver bullion was also forbidden.

The ratio between dollars and notes seems therefore to vary with the disparity between the rate of exchange and the value of the dollar as silver, provided that silver can be freely exported. The margin by which the rate can lag behind silver parity will depend upon the cost of collecting silver and sending it to the most profitable market. But there is little bar silver in Hongkong, and therefore this arbitrage operation has to be carried out in Mexican or Hongkong dollars, or in fen, Cantonese subsidiary coin, or anything else of that kind. The best, though not the only market for Mexican dollars is at Shanghai, and this makes it important to compare the position of silver in Hongkong and Shanghai. Now the disparity of the sterling rates was often greater in Hongkong than in Shanghai even when silver was allowed to pass freely in and out of the colony; hence wide variations in the tael rate. At any given time, with silver at a given price the silver-sterling exchanges fluctuate about a silver parity. They fluctuate within limits fixed by the cost of sending silver bullion to the centres when it can be marketed for gold. Now it may happen that when the price of silver advances the exchange is already high, and pressing, as it were, against the silver specie point. In that case trade conditions will allow of a rise of the rate which may keep pace with the rise of price of silver—if the latter does not go very fast. But if the condition of trade naturally established a rate pressing against the other specie point, *i.e.*, a low rate, then the rise in silver would be followed reluctantly as it were, and a considerable lag might result, which would be the greater, the more rapid and extensive the rise of silver. In fact when silver rises very rapidly the genuine trader generally steps back out of the market and only inter-bank and

more speculative business is carried on. It is clear that the trade conditions will not be the same in all ports, and it is also a fact that the Shanghai market is far more speculative and perhaps more freely competitive than the Hongkong market. It is not surprising, therefore, to find that in the summer of 1916 when the price of silver made a spectacular advance, the rates in Shanghai and Hongkong lagged behind by a percentage which increased as the price of silver rose, and was greater for Hongkong than for Shanghai. In Fig. 3 this disparity is shown by the distance above or below the line marked "parity". The black line representing the Hongkong disparity rises higher and falls lower than that representing the Shanghai disparity. In other words the Shanghai rate more nearly follows the price of silver than does the Hongkong rate.

It would appear, therefore, that the premium on dollars¹ occurred (see Fig. 2) when the Hongkong and Shanghai sterling rates of exchange were more than 3 per cent below silver parity, the Shanghai rate being below parity or only slightly above it when the Hongkong rate was above parity. When the Hongkong rate was more than 3 per cent below parity, generally by a considerable percentage more than the Shanghai rate, the notes went to a discount. The most probable explanation of this is that silver is exported when the rate is more than 3 per cent below parity and imported when it is above. This silver is obtained by the Chinese who deal in this business, not by presenting notes to the Hongkong and Shanghai Bank for encashment, but by exchanging notes for silver in the money-changer's market, or by bringing down silver from Canton in exchange for notes. That silver will ordinarily be dollars and it is limited in amount

¹ Which is the same as a discount on notes.

and not easy to collect. The consequence is that it goes to a premium in this market, that is to say the notes go to a discount. On the other hand when the Hongkong rate is above parity the dollars will tend to flow back into Hongkong and the notes will go to a premium in the same market.

In practice one speaks of a premium on the silver dollar, not a discount on the notes, and vice versa, for all transactions are reckoned in notes in spite of the fact that the dollar is legal tender.

This movement of silver out of the colony should be reflected in the tael rate, the ratio of exchange between the currency of Hongkong and that of Shanghai. This is an exchange between two silver currencies, nominally at least, though we have seen that Hongkong really has a paper currency. This tael, of course, is really a money of account, for it is the Shanghai weight tael with an allowance for fineness and a "convention" which counts 98 of these as full payment for a debt of 100. It is as though one should reckon the English currency in Troy ounces of gold of say twenty-three carats, every ninety-eight of such ounces to be considered as one hundred; and in the meantime the currency to consist in practice of sovereigns, notes, and tokens as before. So in Shanghai the currency is dollars and subsidiary coins, but accounts are kept in dollars and taels and big transactions carried out in taels.

Theoretically, then, the rate of exchange for Hongkong dollars into taels cannot vary by more than the cost of moving silver from Hongkong to Shanghai and vice versa. The mint par, if one can speak of a mint par where one of the currencies is so abstract, is practically \$100=Ts. 71.5. In practice, however, there is no mint price at which dollars can always be made into taels or vice versa, but a

market price, which fluctuates considerably and not very regularly within the limits fixed by the cost of melting dollars into sycee in Shanghai and of coining dollars at Bombay. Nevertheless there is at any moment a par for dollars, and one would expect specie points beyond which the rate cannot go. As a matter of fact those specie points are not effective because of the small amount of silver available in Hongkong for the arbitrage and the lack of a mint at Shanghai and Hongkong. The Chinese mint does not affect the question. Movement of specie therefore takes place but it only checks the movement of the tael rate, it does not absolutely stop it. The last diagram Fig. 4 opposite shows the movement of the tael rate. It falls below parity on the fifth of April. On the same day Mexican dollars reached par (Fig. 2) and two days later went to a premium. The price of taels in Mexican dollars in Shanghai, which is not shown on this diagram rose to its highest point on April 4th, and thereafter fell away to the end of the period under consideration. This is consistent with the movement of dollars from Hongkong to Shanghai, which would be called for by the tael exchange moving so unfavorably for Hongkong.

The conclusion that the unfortunate variations in the ratio of exchange of the silver and paper dollars was at least partly due to the use of dollars to arbitrate differences between the sterling rates at Hongkong and other silver centres, especially Shanghai, is confirmed by the effect of the prohibition of the export of silver in 1916 and 1917. The prohibition at first extended only to the Hongkong dollar, but as the Mexican dollar at once went to a premium it had also to be included. The consequence is that the notes and silver now exchange practically at par, but the sterling rate departs from parity

even more easily than before the prohibition, and it avoids the violent fluctuations which once characterized it. In fact we have something intermediate between a gold and silver standard; the rate is fixed by the trade requirements, including speculation; and as there is no possibility of arbitrage in metal, the rate must be very much more under the control of the big financial houses than was formerly the case. Export of silver can still take place under licence, but I do not know what guides the Government in granting or refusing licences.

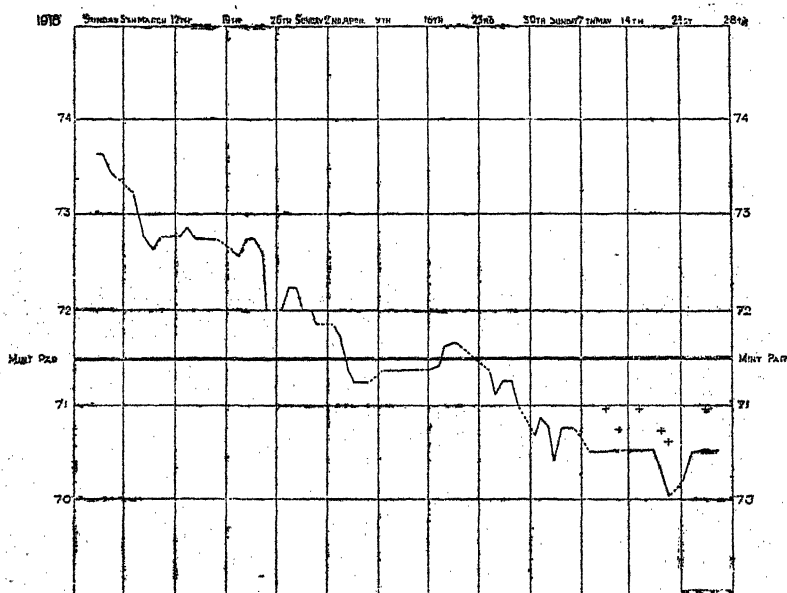


FIG. 4. DIAGRAMS SHOWING VARIATION FROM "MINT PAR" OF THE TAI L RATE ON SHANGHAI IN HONGKONG.

It will be interesting to see whether this experiment will modify the opposition which has existed in some quarters to the idea of a gold standard for Hongkong. Hitherto it has been urged that to establish such a standard for the colony while it has a hinterland with a different system of currency would be to lose for it the financial leadership of South

China. The notes of the Hongkong and Shanghai Bank have already gone to a discount in Canton, and this may confirm the opinion of the pessimists. However that may be, the currency is now practically the creation of the Hongkong and Shanghai Bank which is our unofficial Master of the Mint.

THE PRICE OF LAND IN THE PUNJAB

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REGISTRAR OF CO-OPERATIVE SOCIETIES, PUNJAB

One of the most conspicuous features in the economic history of the Punjab has been the rapid and continuous rise in the price paid for agricultural land. Under the Sikh regime, when "the cultivator ploughed with a sword by his side and the Collector came for the revenue at the head of a regiment," land, except in the immediate neighborhood of big towns was practically unsaleable. Prior to the mutiny, transfers were almost unknown and in some parts of the province sales do not appear to have occurred before 1868. The Province, it will be remembered, was annexed in 1849. It was looked upon as a country of deserts and barren wastes and its addition to the empire was regarded as merely another burden upon the already depleted finances of the Government of India. With the introduction, however, of settled law and order, fixed moderate assessments, and security of right and tenure, the Punjab embarked upon a remarkable career of prosperity which has

continued, practically without interruption, down to the present day and to which, with improved communications, expanding irrigation and rising prices for its agricultural produce, no end is at present visible.

It was shortly after the mutiny that sales of land began to attract notice and by 1872 the increasing volume began to cause disquiet to Government. The Punjab is essentially a province of peasant proprietors. The typical owner possesses some eight acres and probably cultivates four acres more as a tenant. The agricultural tribes are generally distinct, easily defined bodies, possessing valuable martial qualities which endow them with considerable political importance. To secure their contentment and prosperity has for nearly seventy years been the main object of the administration. Their expropriation by tribes of non-cultivating capitalists would obviously have proved a grave source of embarrassment and the annual Land Administration Reports testify to the solicitous care with which the Punjab Government watched the rapid increase in sales of land by the ancient owners to money-lenders and shopkeepers. The prolonged official anxiety finally led to the passing of the Land Alienation Act in 1901. Throughout this period, however, the continued rise in the price of land has been regarded as a matter for pride and congratulation and no doubts seem to have arisen as to whether this process has not continued past the limits at which it could be viewed with complacency. It is this question which forms the subject of this paper. Undoubtedly the efforts of the British Administration to confer on the agriculturists all the requisites of a prosperous peasantry was the initial cause of the rise in price. Reduction of the revenue assessment, preparation of an accurate record of rights and the legal protection accorded to these

rights gave land a market value. In 1869-70 the average price paid for over a hundred thousand acres was ten rupees per acre, equivalent to 18 times the annual land revenue. By 1875-6, it had risen to Rs. 20 per acre or 31 times the land revenue. This rise was probably connected with the heavy export of grain to famine stricken Madras. In the next few years the province experienced short rainfall, and bad crops, the area sold increased and the price fell to Rs. 17 an acre. The effect of the reduction of assessments was to bring the price in 1882 to what was then regarded as the "unprecedented multiple" of 36 times the land revenue.

Other factors which at this time exerted a marked influence on land prices were railways and canals. The first railway in the province was commenced in 1858 and was opened for traffic in 1862. The line from Lahore, the capital, to Multan, which then had a connection by steamer with Karachi, was opened in 1865 and the province was linked up with Bombay and Calcutta in 1883, by which time there were about 1,100 miles open for traffic.

Inundation canals existed before the annexation and were rapidly extended afterwards. Big irrigation schemes were rapidly put in hand. The Bari Doab Canal was opened in 1859 and the Sirhind Canal in 1870. The vigorous extension of canals and construction of railways created a great demand for labor which was further intensified by the Afghan war of 1879-80. Prices rose considerably and in spite of the severe famine of 1868-9 and the scarcity of 1877-78, the cultivating classes increased in prosperity. The railway enabled large amounts of grain to be exported to Bengal in 1873 and to Madras in 1876 on the occasions of famine conditions in those two Presidencies, and shortly afterwards the European

market was brought into touch with the province. The result was a rapid increase in the number and value of transactions in land. The gross sum paid for land was 10 lakhs in 1869-70; five years later it had risen to 15 lakhs, and 1879-80 it was 30 lakhs of rupees. That these sales were due to surplus money seeking investment rather than to straitened economic conditions is indicated by the fact that they were most frequent in the most prosperous districts. The money-lending buyer (bania) was, at this time, not always allowed to take possession of his purchase in peace, but as the power of the courts increased his policy of steady aggrandisement at the expense of the old landowning class was made more safe and more profitable. About 1876-7, the tendency for agriculturists to embark on money-lending attracted notice. Nearly half the land sold was transferred to members of agricultural tribes and the eager readiness with which the farming class bought up plots in their immediate neighborhood undoubtedly contributed to the upward movement of prices.

In the quinquennium ending in 1877-8 the average area annually sold was 93,000 acres, in the quinquennium ending with 1882-3 it was 160,000 acres; in the next it was 310,000 acres and in the following one ending in 1892-3 it was 338,000 acres.

In spite of this remarkable increase in the area sold (which includes mortgages converted into sales) there was a still more remarkable rise in the price paid. In the early days land in Sirsa sold for six annas an acre; about 1869 the average for the province was ten rupees. Thereafter the upward movement may be illustrated by the following figures:—

1875-76	Average price per acre	Rs. 20, or $31 \times$ land revenue
1880-81	" " "	Rs. 18, or $32 \times$ " "
1885-86	" " "	Rs. 16, or $36 \times$ " "
1890-91	" " "	Rs. 80, or $50 \times$ " "

The official figures now give the average rate per cultivated acre as follows:—

	Rs.	
1885-86	30	
1890-91	61	
1895-96	59	or 56 × land revenue
1900-01	77	or 89 × „ „
1905-06	85	or 105 × „ „
1910-11	124	or 127 × „ „
1916-17	227	or 157 × „ „

In the 21 years from 1896-7 to 1916-17 about 967,000 plots of land, totalling some three million acres of cultivated land (nearly 10 per cent of the whole), have been sold for thirty-three crores of rupees.

Looking at the figures, it may be said that from 1868 to 1891 the rise in price was not more rapid than might be expected to result from lenient assessments, improved communications, wider markets and other accompaniments of settled government. The continuance of the rise is more difficult to explain. It is not due to increasing density of population, for this in 1881 amounted to 514 of the total population per square mile of cultivated area, and in 1911 it had fallen to 499.

It is not due to better cultural methods or to improvements in the soil. The number of agriculturists per hundred cultivated acres has declined from 46 in 1868 to 43 in 1911, and it is believed that there has been a similar decrease in bullock power. The question of improvement due to manuring, or the introduction of clovers or root crops does not arise. The average intensity of cultivation has probably declined.

In part the upward movement is due to the increase of irrigation from canals, wells etc. from nearly six million acres in 1868, to over twelve million acres in 1917. The cost of the well is usually included in the price of the land. It is important to observe, however,

that the general rise in price is also marked in districts without canal irrigation and in tracts without wells.

In part the increase may be due to the price of agricultural products, but the influence of this factor is difficult to estimate. In 1869 wheat was selling at 13 seers per rupee; it fell steadily from 1871 (20 seers) to 1877 (27 seers) and then rose sharply to 13½ seers in 1879. The continuous steady high price in recent years due to better communications with good markets may account for part of the increased value of land to exporting districts, but it cannot have had much effect in districts which consume their own produce. The expenses of cultivation have risen considerably. Bullocks were Rs.35 each in 1870, now the average price cannot be less than Rs.80 and other items have similarly gone up in price. It must always be remembered that any increase in cost of production affects the whole produce, while a rise in the price of the produce only affects the portion sold. The marked leniency in assessment of the government demand has enabled the cultivator to keep more of the surplus assets for himself. In 1868-9 the demand averaged Re.1-1-3 per cultivated acre, at present it is Re.1-8-6, nearly the whole of the rise being due to the extension of irrigation. The increase in the government demand on the same class of soil is actually less than the increase in prices of produce so that the real burden has been lightened.¹ The rapid expansion of cultivation in the central and western States of America caused land prices to fall all over Europe; and even in America itself as recently as from 1880 to 1900 there was an annual decrease in

¹ Note. It seems doubtful, however, whether the influence of the leniency of the land revenue demand is not sometimes overestimated. In the last annual report, the demand is given as Re.1-8-0 per acre, the price over 150 times this and the average produce as Rs.25. If the rent is half the produce or Rs.12-8, then the return is 4.9 per cent: total remission of the demand could increase this to 6.5 per cent and doubling it would reduce it to 4.2. Such small differences can hardly account for present high prices.

the value of farm property in New York State, and a similar shrinkage of land values is shown by Ohio. Even now it appears that the average price of general farm land in New York is somewhere about Rs.132 per acre as compared with Rs.227 in the Punjab. The expansion of cultivation due to the colonising of large newly irrigated tracts in this province has not resulted in any corresponding decline in the average price in the older districts. The rise is not due to immigration from outside the Province nor does it appear to be due to any realisation that the land will in future yield a bigger income with more skillful treatment. In the Lower Bari Doab Colony an increase in the price realised at Government auctions from Rs.229 per acre in 1917 to Rs.331 in 1918 was probably due to the discovery that the land was suitable for American cotton, but this appears to be exceptional.

The continuance of the rise appears now to be the result of local conditions. In the first place the owners are hereditary agriculturists attached to the soil and the village from generations back. There is practically no open market for the land; that is to say a man selling his ancestral acres in his own village could not be certain of finding other land available for purchase in another village. There is hardly any such thing as "land for sale". To the influence of the hereditary connection is added the effect of the progressive subdivision of holdings; the ancestral property is too small for economic working and can only be added to by snapping up little plots in the immediate neighborhood. These opportunities, however, are very rare. There are roughly $2\frac{1}{2}$ million families supported by agriculture in 33,400 villages. In 21 years, as mentioned above, the number of recorded transactions was 962,000, or about

46,000 a year, or 29 per village in 21 years. Thus each family has only one chance of buying a plot in 54 years; or if we assume that vendors and vendees are equal in numbers, then the chance comes on the average once in 27 years. It is this scarcity value which accounts for the rise in such remote tracts as Kulu. In this Himalayan tract the average price for the period 1871-1891 was Rs. 27 per acre; from 1891 to 1912 it was Rs. 85 per acre. The writer of the Gazetteer remarks that the price of the land bears no relation to the profit to be made out of it. Across the Central Himalayan chain the price is Rs. 157 in Lahul and Rs. 133 in Spiti. These are almost entirely due to the intense scarcity of land suitable for cultivation and the scattered nature of the habitations adds a high site value to the land. It is no good to a man with money in one village to know that land is for sale two villages off.

It is becoming increasingly clear that the factors referred to have raised the price well above the economic limit. The latest Report on the Court of Wards in the Punjab deals with a cultivated area of over 200,000 acres; the estimated value is only Rs. 94 per acre. The gross income accruing from this large area works out at under 7 per cent of the value; after paying land revenue, the rate is reduced to 5 per cent, and when the cost of management and ordinary repairs is deducted, the resulting profit is $4\frac{1}{2}$ per cent. If the land were valued at 157 times the land revenue (the multiple for 1916-17) the net profit would be only 3 per cent. It is difficult to form an accurate estimate of the profits of farming anywhere at any time, and in the Punjab, there is nothing very reliable of this nature on record. The figures quoted have the merit of being actual accounts relating to a large area scattered over the

province and illustrate the point that the present price is higher than would be justifiable in the case of a man buying land solely for the value of the yield he was expecting to extract from it. The general prosperity of the province already referred to, coupled with a large income from service in the army, etc., and an appreciable sum from the earnings of emigrants to Australia, America and other places, have brought into the possession of the people large sums of money for which they can think of no investment except the land and jewels. In former times the latter was a popular form of keeping surplus money, but there is always a loss on realisation. In the case of land, the rise in price is a prime factor in the continued rise of price; that is, the common experience is that an investment in land will yield a profit on realisation. If the land is not, at the time of purchase, quite worth the price demanded, it will probably become so in a few years. There is thus a tendency to forestall the increase in price. Another factor is the wealth accruing to professional men for which they are unable to find a safe and suitable investment. Industries are unimportant and joint stock enterprise is moribund. In 1868 there were 40 pleaders in an area which now finds work for about 1300, and these and other professional men evince a natural desire to become owners of property which will not decline in value. In these cases the direct return is of minor importance.

It will be seen from what has been said above that the continued rise in prices, so far from being a subject of congratulation, is really a matter for serious concern. Speculation in land has seldom proved of much help to agriculture whereas it has frequently, as in Ireland and the United States, caused considerable harm. As has been pointed out,

a great factor in causing the rise is the rise itself. If land were to decline in value, it would rapidly fall out of favor as a source of investment, and the capital thus set free would be available for development in other directions. It is an obvious evil that the new capital is invested in the land and not in improvements to the land. Of the several companies owning railways in the province, none has attracted much of its capital from within it, yet the official report shows that nearly $2\frac{1}{2}$ crores of rupees were spent on buying land last year. This money neither adds to the area under cultivation nor increases the produce from the present area.

Another serious drawback in the existing situation is that inflated land values render it practically impossible for the small owner or the tenant with a little capital to obtain land. There is no means of arriving at the number of owners who have been expropriated in recent years. But of the 960,000 sale transactions in the last 21 years, a certain proportion must represent reductions of holdings below the limit of economic livelihood, and a further proportion must represent the fall of ancient owners to the position of tenants. It is no answer to say that there must have been corresponding additions to other holdings. It is of little moment whether the well-to-do adds a few acres to an estate already large enough for his support in comfort. It is of considerable importance that tenants and the owners of uneconomic holdings should be able to look forward to acquiring land as a reward of thrift. Nearly half the land of the province is cultivated by tenants at will: many are themselves owners in the same or a neighboring village; but a considerable number are not owners, and it would strengthen the economic position in the province if they could become so.

In other countries it is practicable to buy land on borrowed money and to repay this in instalments; in the Punjab the yield would in many cases not suffice to meet interest charges.

The rise in the sale price has been accompanied by a corresponding rise in the average sum obtainable on a mortgage, but here again the enhanced credit has been productive of evil rather than of good. It has not been used to raise funds for productive purposes, and the volume of unproductive debt tends to rise steadily with the increase in credit. To one who desires to sell his land, the present high prices may be welcome, but to the cultivator intending to spend his life on his holding, these merely bring temptation to borrow. It has been said that countries under a poor system of agriculture with inefficient labor cannot maintain a high value of land, and it is not improbable that the existing uneconomic rates in the Punjab will give way if other avenues for the investment of money are opened up under conditions calculated to inspire confidence. One effect of the war has been to raise the interest receivable from government securities until it differs little from the return from land leased on a cash rent. Another effect may be to induce British holders of shares in local railway companies to sell at rates which would prove attractive to local capitalists. Any such tendency would probably bring benefit to the province, as it seems clear that its rapidly increasing wealth is, for want of opportunities of land investment, giving rise to a distinctly unsatisfactory situation.

THE RELATIVE PRICES OF FOOD GRAINS

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ASSISTANT WHEAT COMMISSIONER FOR INDIA

Owing to the number and variety of cereals and pulses grown in India, the population is able to make a more varied selection of foodgrains for consumption than in most other countries. As the population is mainly vegetarian, this power of selection has an important effect on national economy, enabling the poorer classes to satisfy their needs of subsistence at a smaller expense than the richer. The commonest example of this is in the case of barley and wheat. In the United Provinces a large number of cultivators habitually sell their wheat and eat their barley. As the relation in price between barley and wheat is normally about 70 per cent, and barley contains in a form available for human consumption about 84 per cent the food value of wheat, the barley consumer as compared with the wheat consumer effects a saving of about 16 per cent in a normal year. A similar saving in expenditure results from the consumption of such grains as *juar*, *bajra*, maize, *ragi* and gram. An examination, however, of

prices shows that the normal relations are subject to very considerable fluctuations, which depend on the supply and demand of the particular grain or the supply and demand of foodgrains on the whole. The relevant portion of the law regarding these variations known as Gregory King's law as given by Professor Thorold Rogers in his *Economic Interpretation of History* is as follows:—

“3. If in the scarcity or excessive plenty, which prevails, as the case may be, there are several kinds of the same article which ordinarily stand in a certain ratio to each other, and can be used interchangeably, the rise of price is greatest in what has hitherto been the cheapest form; and conversely in a time of over-supply the greatest fall is in what has hitherto been the dearest. This rule will require a little explanation. Roughly speaking wheat, barley and oats stand in the ratio 100, 73 and 50. Now in times of scarcity, 73 and 50 will rise more than 100 does, and if there be a fall in prices owing to excessive supply, 100 will fall more than 73 and 50 do. This rule is of the greatest importance in practice and in a rough manner is seen though none too clearly by practical men of business.”

An examination of prices showed that over the greater portion of India, people were willing to pay more for rice and wheat in proportion to their food value than for *juar*, *bajra*, *barley* and *gram*.¹ Rice and wheat are, therefore, favored grains, and the cheaper grains will generally be ruled by the prices paid for wheat and rice. In the central part of India, consisting of Bihar, United Provinces, Central Provinces and Bombay, both rice and wheat are extensively used for consumption, and the relations

¹ In parts of the Bombay Presidency and the Central Provinces, a minority of the people, owing no doubt to long accustomed habits of consumption, would appear to prefer *juar* and *bajra* to wheat.

in price of the cheaper grains with both rice and wheat come into play.

I first examined the food values of the various grains to see how far the difference in price was due to inferiority of actual food contents.

Professor Church in his *Foodgrains of India* has given us the analysis of the constituents of all the common cereals and pulses. From this a simple calculation gives the number of calories or measures of food values contained in any particular grain. The main difficulty in comparing grains according to their food values lay in calculating the amount of husk, which was lost in converting the grain into a product fit for human consumption. From enquiries made it would appear that in ordinary millstone milling for production of coarse flour such as is generally consumed the loss for husk will average for wheat about 7 per cent, barley 20 per cent, gram 11 per cent, *juar* 15 per cent, maize 10 per cent, and *bajra* 5 per cent. Common rice, of course, as it is ordinarily sold, has the husk already removed so that no allowance for husk is necessary. Working on this basis the number of calories contained in 100 grams of each grain is as below:—rice 357, wheat 329, barley 277, gram 329, maize 331, *juar* 304, *bajra* 351. If cheaper grains be compared with rice and wheat, the food values contained therein, subject to variations of quality, may be shown as below:—

Food values as compared with wheat=100

Rice	Barley	Gram	Maize	Juar	Bajra
109	84	100	100	92	107

Food values as compared with rice=100

Wheat	Barley	Gram	Maize	Juar	Bajra
92	78	92	92	86	98

These food equivalents are not exact for the following reasons:—(1) The percentage of moisture

in food grains is not constant, and an excess of moisture will reduce the food value of the grain in proportion to the excess. The extent to which the percentage of moisture in wheat varies may be judged from the result of experiments made by Mr. Maxwell-Lefroy, Imperial Entomologist, shown in his contribution to the *Indian Trade Journal* of November 18th, 1909. He found that two samples just threshed and straight from the field contained 6.7 and 7.2 per cent of moisture. The same sample dried in the sun for some days contained 4.7 per cent of moisture. The same wheat left open in the air till July contained 14.1 per cent of moisture. The average composition of Indian wheat as found by Professor Church was 12.5 per cent of moisture. Professor Church appears to have conducted all his analyses in England. In the case of maize it is found necessary to allow for dryage of from five to ten per cent on maize purchased in this country for sale in Europe, which indicates that the grain in this country contains five to ten per cent more moisture than the same grain in England.

The cheaper *kharif* grains such as *juar*, *bajra* and maize are generally consumed in India in the months immediately following harvest, when they may be expected to contain a considerable excess of moisture and their food values may generally be taken as being less than that shown above. In the case of barley and gram, which are consumed *pari passu* with wheat generally throughout the year, the variation in moisture, as far as it affects the proportionate price, will not be great.

(2) In the above proportionate values no allowance has been made for the cost of labor in preparing the foodgrain for consumption and the value of the bran and husk produced. The cost of labor involved

does not vary directly with the price and the proportionate cost of labor will be considerably higher in the cheaper grains.

It is not, therefore, possible to work out an exact natural equivalent price relation between the various grains, but the above relations with allowance for moisture in the case of *kharif* grains will indicate the limits to which the price relations will tend to converge, when all food grains are in demand simply for their food values.

It is a well-known phenomenon of famine times in India that the prices of the cheaper grains tend to approximate to the prices of the dearer. Unless we assume that the tastes of the population entirely change, the price of the cheaper grains in general consumption when the dearer grains are also available cannot rise, owing to demand for human consumption, higher than the point, where an equal amount of food is obtainable for the same price whichever grain is consumed, that is to say, when the prices are at their natural price relation. Taking wheat and barley in the United Provinces, the maximum price relation on the average, in any one year, was 79 per cent reached in the famine years of 1896 and 1897. It is probable that at certain times during those years, the price relation may have reached 81 per cent, as the latter percentage was reached in Meerut in one year, and 84 per cent was the natural price relation found by comparison of the food values of wheat and barley. With gram the case is somewhat different, as, compared with wheat and rice, it contains a much larger proportion of proteid, and when proteid is in special demand owing to scarcity of pulses, the proportionate price may rise somewhat higher than its food value, as measured in calories, would warrant. Thus the price of gram has been

known to average as high as 101 per cent and 103 per cent the price of wheat in the United Provinces and the Punjab although its natural price relation is about 100 per cent. In years of plenty as evidenced by low prices and generally by large exports the price relations of the cheaper grains tend to fall lower than the average, but the fall below average will not be so great as a rule as the rise above average. To this extent the prices of food grains in India tend to bear out Professor Thorold Rogers' enunciation of Gregory Smith's Law.

I have tabulated in the Appendix the average price relation, the maximum average over any one year and the minimum average over any one year of the cheaper grains to wheat and rice in various provinces. It will be seen that almost invariably the maximum price relations are reached in years of scarcity and the minimum relations in years of plenty. These maxima and minima are averages over a whole year and are not absolute as the relative prices in any given year are also liable to fluctuations, so that the maxima and minima shown have probably been exceeded. If the maximum relations to wheat be examined, excluding gram as possessing somewhat different food constituents, it will be found that the only grain which exceeded the price relation, worked out on food values, was *juar* in the Punjab in 1900. Now the price of *juar*, when the demand for seed is great, frequently exceeds the price of wheat and the quotation, as far as human consumption is concerned, may be a purely nominal one. Secondly *juar* is often only available during its season and at a period when the price of wheat is considerably above the average price of the year, so that the price relation worked out on the yearly average is not accurate.

In the relations to rice it will be seen that the price of barley exceeded its natural price relation in Bihar in 1897, *juar* its natural price relation in Bombay in 1900. This, however, serves to illustrate that the prices of these grains are governed by the price of wheat as well as rice. Thus barley in Bihar in 1897 sold at 3 points higher than its natural relation with rice, but at 4 points lower than its natural relation with wheat. Similarly *juar* in Bombay sold at 5 points above its natural price relation with rice, but at 10 points below its price relation with wheat in 1900.

The average requirements for human consumption in India per head of the population are between five and six maunds per annum. The average retail price of food grains in India for the ten years ending 1916 was just under Rs.4 per maund. Assuming the grain consumed by the cultivator may be valued at wholesale rates, a valuation may be taken at Rs.3-8 per maund. On $5\frac{1}{2}$ maunds this valuation will give us an expenditure per head of Rs.21 per annum. If the annual income per head in India be taken during those years at Rs.45 to Rs.50, expenditure on food grains would absorb between 42 and 47 per cent of the income. It is not surprising therefore that variations in price relations have an important effect on the kind of food grains consumed, as the consumer is attracted to consumption by comparative cheapness and repelled by comparative dearth.

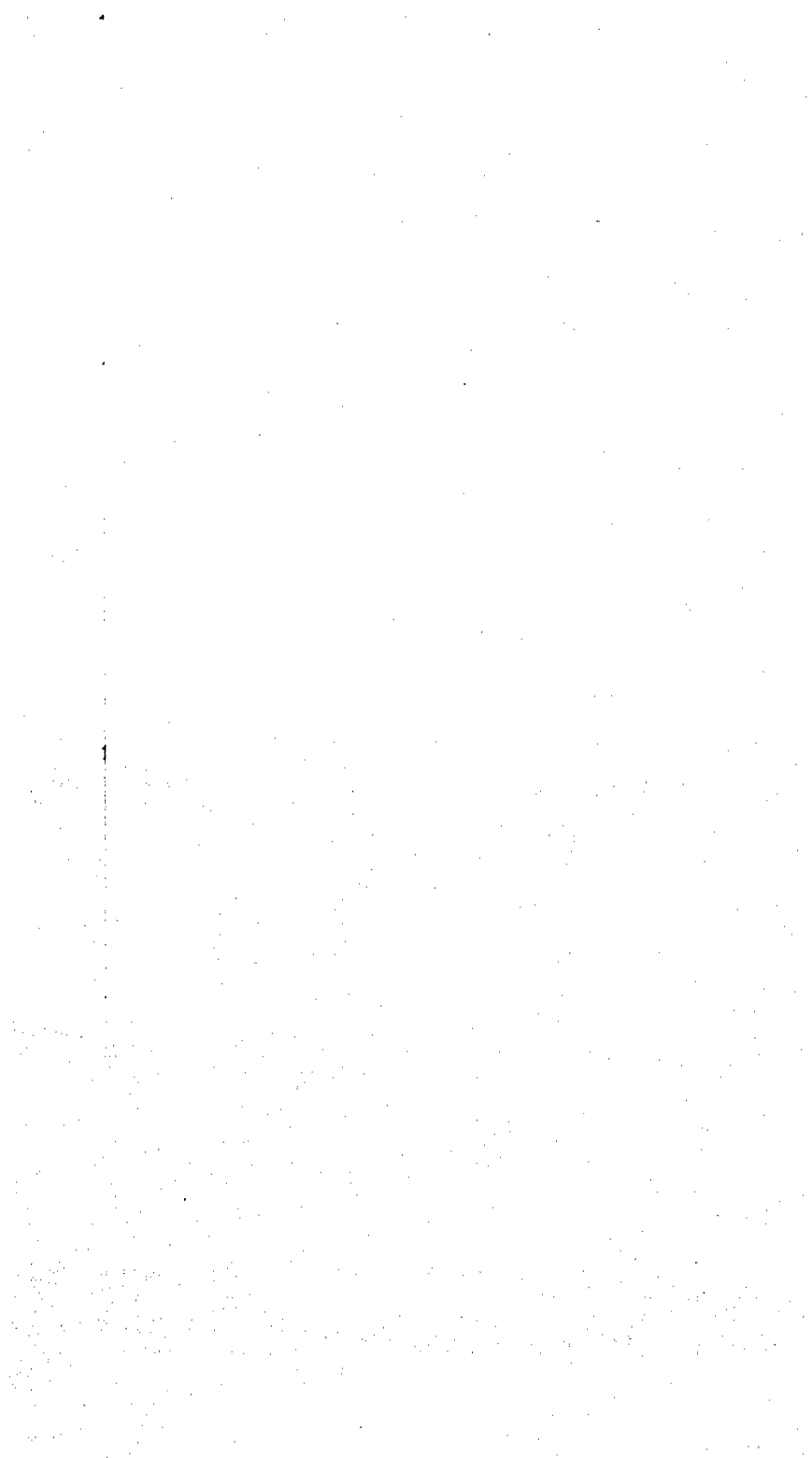
This change in consumption, due to or accompanying a change in relation of price in the case of wheat and rice, is clearly brought out in municipal statistics of consumption. Thus in the years 1912-13 and 1913-14, when rice was selling on the average at about 152 per cent the price of wheat in Benares and 142 per cent the price of wheat in Lucknow, the

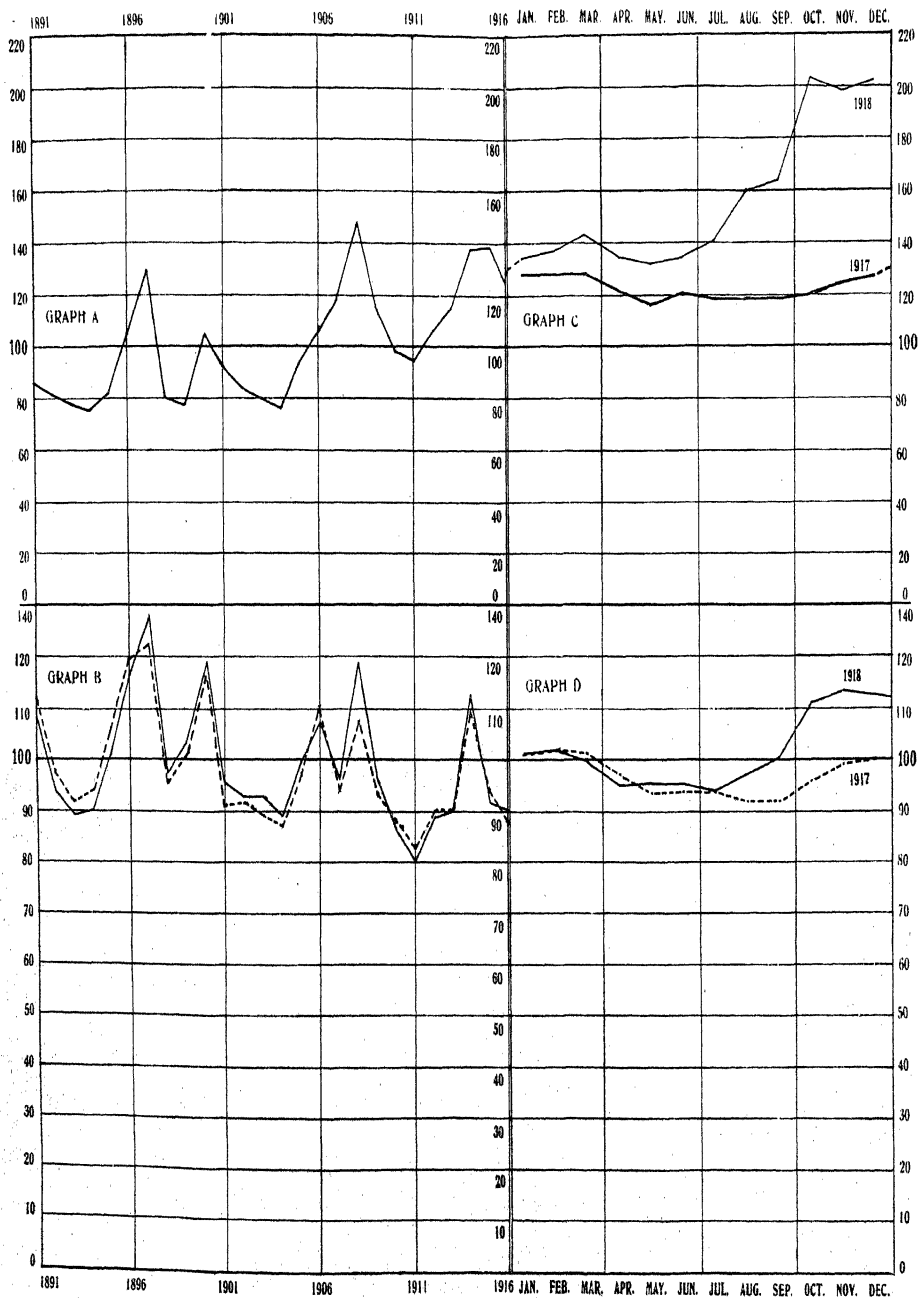
consumption per head per annum in Benares was 2.11 maunds of wheat and 1.56 maunds of rice, and in Lucknow 3.12 maunds of wheat and 1.01 maunds of rice. In the years 1914-15 and 1915-16 on the other hand, when rice was selling on the average at about 125 per cent the price of wheat in Benares and 122 per cent the price of wheat in Lucknow, the average consumption per head was in Benares 1.84 maunds of wheat and 1.77 maunds of rice and in Lucknow 2.58 maunds of wheat and 1.36 maunds of rice. The Bombay Presidency, excluding Bombay city, habitually imports foodgrains from other provinces. In the years 1909-11 when rice was selling at about 102 per cent the price of wheat in the Presidency, the percentage of the net import of rice to the net import of all foodgrains was 48 per cent; in 1911-14 when rice was selling at 121 per cent the price of wheat, rice formed only 24 per cent of the net imports; and in 1914-16 when rice stood at 110 per cent the price of wheat, rice formed 51 per cent of the net imports. These illustrations, which are in accordance with ordinary economic laws, have only been given to show that their operation is clearly evident from statistics and that a rise or fall in the normal price relation of two commodities means or occasions generally a fall or rise in relative consumption.

I have taken the prices of the United Provinces as an illustration in the accompanying graphs (see diagram opposite p. 408). This province produces and consumes the largest quantity of foodgrains, and is normally self-supporting; it is served by a network of railways, which prevent local peculiarities from having undue influence, and the position of the province is such that it can easily supply other provinces or draw on them in case of shortage. Rice and wheat are consumed in approximately equal quantities by the population, as, although

the area under wheat is generally greater than the area under rice, wheat is usually exported and rice imported. Prices have been taken from *Prices and Wages* for the years 1891-1916. Prices for 1917 and 1918 up to September have been compiled from the retail prices in the fortnightly publication of wholesale and retail prices, and those from September onwards from the Government Gazette.

The price relations of rice, wheat and gram to rice and wheat were worked out year by year. The relations of the *kharif* grains *juar*, *bajra* and maize were also examined. Prices of the *kharif* grains are not quoted in most of the markets for more than a few months of the year, so that the annual average prices are not correctly speaking averages for the year at all. The variation of their relations with wheat and rice, so far as can be ascertained from these prices, agrees closely enough with the variation of relations of gram and barley to show that the general trend is the same. The general trend of these relations is to rise in years of scarcity such as 1896, 1897, 1900, 1906, 1908, 1914, and to fall in years of plenty like 1893, 1894, 1904, and 1911. This result has been shown in a simple form in Graph B where the relation of the mean price of gram and barley as compared with the mean price of wheat and rice is shown, but in percentages of the average price relation over a series of years which is 65.4 per cent. The arithmetical mean of gram and barley has been taken as gram and barley are of approximately equal importance in the food-consumption of the people. The curve of the weighted mean relation of gram, barley, *juar*, *bajra* and maize to rice and wheat has also been shown by the broken line to demonstrate that the relation of gram and barley to wheat and rice represents the general relation of the cheaper grains sufficiently well





Graph A shows the variation in level of foodgrain prices. The level of average prices from 1891 to 1915 has been taken as 100.

Graph C shows the foodgrain prices for the years 1917 and 1918 month by month.

Graph B shows the variation of the relation of the mean price of gram and barley to the mean price of rice and wheat from the normal relation (65·4 per cent) taken as 100. The dotted line shows the variation in price relation of jwar, maize, bajra, gram and barley combined, to rice and wheat.

Graph D shows the price relation curves for the years 1917 and 1918 month by month.

DIAGRAM ILLUSTRATING FOODGRAIN PRICES IN THE UNITED PROVINCES FROM 1891 TO 1918

except in the year 1908, when the gram and barley relation was too high owing to the phenomenally low area under gram in India in 1907-08.

The general level of prices of food grains is shown in Graph A. The prices are roughly weighted in proportion to their importance, wheat and rice with 4 and gram and barley with 3. The curves have also been shown for the years 1917 and 1918 by fortnight or month. The average price level from 1891-1915 is Rs.3.19 a maund which has been taken as 100.

If the Graphs A and B be compared, the closeness of their relation is apparent. The rise and fall agree except in 1894 and 1899, when the price relation curve anticipated the large rise in prices in the following year, and in 1915 when a similar fall in 1916 was anticipated. In 1906-7 the price relation was falling while prices were rising. It is a well known fact that there was a general rise in price of food grains all over India between 1904 and 1908, and prices have never since fallen to their former level. A general rise in prices, not wholly due to scarcity, would not affect the price relations of the food grains so that this fall of price relations in 1906-1907 indicates that it was mainly in these years that the general rise of prices took place. After the scarcity of 1900 the price level of food grains appears to have risen somewhat. When the price relation stood at 100 the price level in 1892 stood at 82, in 1895 at 82 and in 1899 at 79, averaging 81. When the price relation was at 100 the price level in 1901 was at 95, and in 1905 was at 96. When the price relation in 1906-7 was at 100 the price level stood at 114 and in 1907-8 at 123.

Up to the end of 1917 the price levels when the price relation was at 100 were as below:—

Year or month	Price level
1908	123
1909	122
1913-14	124
1916	126
March 1917	126
December 1st 1917	127
<hr/>	
Average	124½

From this it would appear that there was a general rise in the prices of food grains between 1899 and 1901 of 18 per cent and in 1906 to 1907 of 31 per cent. The remarkable feature of the latter table is that in spite of the war there was no general rise in the level of prices of food grains in the province up to December, 1917. Prices in 1914 and 1915 ruled high, but that was owing to actual scarcity, as the area under food grains in the province in 1913-14 was about 4 million acres below average, and the province, normally an exporting one, was forced to make a net import from other provinces of over 300,000 tons of food grains in 1914-15.

The above argument is open to the objection that the price relation may be undergoing a process of variation, in that the people may be developing a greater preference for wheat and rice as compared with gram and barley. The fact that the price relation was lower in 1904 than in 1894 and lower again in 1911 appears to bear out this point of view. This lowering in the price relation was however accompanied in each case by a greater surplus of food grains as shown by export. The exports of wheat, gram and barley in 1904 exceeded those of 1894 and the exports of 1912 exceeded those of 1904. Secondly, it may be argued that the compara-

tive rise in the price of wheat and rice in good years may be due to the export demand. It may be freely admitted that the export demand for wheat will tend to have that effect, but the effect is small as there was a very heavy fall in the price relation for 1900-01, yet the export of wheat in 1901 was small. Lastly, a relatively good year for gram and barley and bad year for wheat and rice and *vice versa* would affect the relation. This, however, will rarely occur to an appreciable extent and the curve based on the *kharif* food grains shows that the curve of gram and barley is sufficiently accurate.

An examination of the variations in the years 1917 and 1918 reveals much the same features as in previous years. It may be taken generally that in a given year there are two seasons of plenty caused by the advent of the *rabi* and *kharif* harvests. In both 1917 and 1918, prices and price relations dropped in April. In 1918 there was no drop in August owing to partial failure of the rains. The curve of price relations in 1918 differs little from the curve in 1917, until about July 15th. From that date they are divergent. The general level of prices in the first half of 1918 was decidedly higher than in 1917. I have shown that, when the price relation was at 100 from 1908 to December 1st, 1917, the price level stood at about 124. In March, 1918, the price level, however, was at 143, and on September 1st the price level was at 167,¹ which would indicate a real rise in the general level of food grain prices by March, 1918, of 18 per cent, and by September, 1918, of 35 per cent, and that the cultivator is obtaining a lift in the general level of food prices similar to that experienced in 1906 and 1907. In October the level of price relation stood at about

¹ At similar points in the 1918 curve for 15 districts in the Punjab the price levels were at 142 and 174 respectively.

the mean between the averages for 1908 and 1914, but prices ruled actually 37 per cent higher. It is impossible to foresee whether the rise in the latter months will be maintained or whether it is not due to effects of temporary speculation or the demand for food grains in other provinces, the cost of freight on Burma rice, or other causes. During the period considered in the province, however, there is no example of the food grain prices falling again to their former level after a general lift in prices.

APPENDIX

MAXIMUM, MINIMUM AND AVERAGE ANNUAL PRICE-RELATIONS TO WHEAT IN PERCENTAGES OF WHEAT PRICES

Province				Maximum	Minimum	Average
GRAM						
Punjab	...	...	...	103 (1900)	64 (1893)	80*
United Provinces	...	...	...	101 (1897)	66 (1893)	80*
Central Provinces	...	...	...	102 (1907)	73 (1910)	86
Bihar	...	...	...	93 (1914)	67 (1910)	79
Bombay	...	...	...	93 (1896)	72 (1910)	83
BARLEY						
Punjab	...	...	...	79 (1900)	60 (1909)	68*
United Provinces	...	...	...	79 (1897)	58 (1909)	70*
Bihar	...	...	...	79 (1897)	59 (1909)	68
MAIZE						
Punjab	...	...	...	88 (1897)	62 (1904)	76*
United Provinces	...	...	...	81 (1891)	56 (1909)	68*
Bihar	...	...	...	85 (1906)	58 (1909)	68
JUAR						
Punjab	...	...	...	96 (1900)	62 (1904)	68*
United Provinces	...	...	...	84 (1906)	59 (1909)	74*
Central Provinces	...	...	...	84 (1913)	56 (1903)	72
Bombay	...	...	...	82 (1900)	54 (1903)	67
BAJRA						
Punjab	...	...	...	104 (1906)	71 (1909)	89*
United Provinces	...	...	...	94 (1896)	61 (1909)	79*
Bombay	...	...	...	87 (1895)	60 (1903)	74
RAGI						
Bihar	...	...	...	77 (1899)	53 (1909)	62

* Average of years 1891-1915; the remaining figures are averages for the period 1892-1916.

RELATIVE PRICES OF FOOD GRAINS 413

MAXIMUM, MINIMUM AND AVERAGE ANNUAL
PRICE-RELATIONS TO RICE IN PERCENTAGES OF
RICE PRICES

Province		Maximum	Minimum	Average
GRAM				
United Provinces	...	87 (1897)	45 (1911)	62*
Central Provinces	...	95 (1900)	59 (1911)	75
Bihar.	...	91 (1897)	61 (1911)	73
Bombay	...	101 (1900)	61 (1894)	76
BARLEY				
United Provinces	...	72 (1896)	42 (1911)	55*
Bihar	...	81 (1897)	51 (1913)	64
MAIZE				
United Provinces	...	70 (1896)	41 (1911)	53*
Bihar	...	75 (1906)	51 (1913)	63
JUAR				
United Provinces	...	76 (1896)	46 (1904)	59*
Central Provinces	...	80 (1900)	43 (1903)	62
Bombay	...	91 (1900)	47 (1903)	61
Madras	...	72 (1900)	46 (1903)	60
BAJRA				
United Provinces	...	90 (1896)	50 (1904)	62*
Bombay	...	95 (1900)	52 (1903)	67
Madras	...	71 (1905)	54 (1903-1904)	63
RAGI				
Bihar	...	71 (1899)	45 (1913)	56
Madras	...	63 (1900)	47 (1903)	55

* Average of years 1891-1915; the remaining figures are averages for the period 1892-1916

CURRENT NOTES

The outstanding event since the appearance of our last number has been the conclusion of the Armistice with Germany (November 10th). This has not immediately modified the economic situation in India, except to a small extent by releasing many firms hitherto wholly engaged on Government contracts for munitions so that they have already commenced booking private orders. The reversion of industries to a peace footing is said to have been already accomplished (January, 1919) in the United States. The Government there, as in India, still retains close control over shipping and railways. The Second Indian War Loan closed in September last with a subscription of over 51 crores. Additional subscriptions since received through the Post Office bring the total up to over 54 crores. This figure is excellent when it is considered that the *kharif* harvest was a failure throughout the Deccan and a large part of the United Provinces and Central India, so that a condition of scarcity was declared in October or thereabouts in a number of districts. A famine commissioner has just been appointed for the United Provinces, and the outlook is serious also in Bombay. India, therefore, will not be able to export surplus foodstuffs during the present season until the next *rabi* harvest which has been greatly benefitted from rains at the end of January.

Purchases of wheat have been made in Australia mainly for use of the armies in India and Mesopotamia.

General imports having been on a fairly high value during 1918, the balance of trade showed some signs of turning against India in the autumn, and the Government of India undertook to sell sterling transfers to the amount of one million pounds per week. The rate of exchange has remained at 1s. 6d.; and it appears to be the policy of Government to keep it at this figure so long as the price of silver remains firm at 48 pence or more. The tendency of prices in India has continued upwards except in the case of cotton cloth, the market for which collapsed suddenly on the announcement of the conclusion of Armistice with Turkey in October and in view of the cotton cloth control scheme and the imminence of placing of standard cloth upon the market. As the prices of cotton piece-goods fell by thirty or forty per cent in the bazaars throughout the country, the application of the Government scheme for the sale of standard cloth was suspended, the administrative machinery being kept in readiness for application should it be necessary owing to prices rising again. This contingency has arisen in Bihar and Orissa and parts of the United Provinces at the end of January, 1919, and a small percentage of looms is now being put under control to manufacture standard cloth.

The most serious economic disaster from which India has suffered for many years was the great epidemic of influenza which began its second, and more serious, visitation in Bombay in September last and then spread rapidly almost throughout the whole of India. It

was raging in the United Provinces and the Punjab during November and then spread out to the North-West Frontier and Afghanistan and over the Himalayas into Tibet. The mortality was unprecedented especially in the rural districts, some villages losing from 50 to 80 per cent of their inhabitants whilst others suffered much more lightly. The disease appeared to have two forms, a virulent and a mild form, and a very high percentage of deaths from pneumonia occurred in families or villages attacked by the virulent form. It may be estimated that throughout India eight to ten million persons succumbed to influenza during the last few months of 1918.

The first Conference called by the Indian Economic Association was held in Bombay on December 30th and 31st, and January 1st last and it was an unqualified success. The meetings of the Conference were held in the Senate Hall of the University of Bombay and opened with an address of welcome from Professor Percy Anstey, who in the capacity of Honorary Local Secretary had made all arrangements for the Conference. Professor Anstey presided over all meetings of the Conference for the reading and discussion of papers, which were held on the morning and afternoon of the first and third days and on the morning only of the second day. On the afternoon of the second day a very important business meeting was held at which the draft constitution of the Indian Economic Association, which had been prepared by Professors Gilbert Slater and Coyajee, was submitted for discussion and adopted. Another business meeting was held the next day at which the following were appointed officers: Chairman of the Committee—Professor P. Anstey; Honorary Local Secretary for Madras Conference—Dr. Gilbert Slater; Hon. Treasurer—Prof. H. Stanley Jevons; Hon. General Secretary—Prof. J. C. Coyajee.

REVIEWS OF BOOKS

RELATING TO INDIA

The Foundations of Indian Economics. BY RADHAKAMAL MUKERJEE, M.A., Premchand Roychand Scholar, Calcutta University, Professor of Economics, Krishnath College, Berhampore, Bengal; with an Introduction by Professor Patrick Geddes. London and Bombay: Longmans, Green & Co., 1916. pp. xxvi, 515. Price 9s. net.

The author made rather an unhappy choice of title when he called his book "The Foundations of Indian Economics", for this suggests a philosophical analysis of the economic structure of India, which would draw upon sociology and economic theory. It is true that some of the chapters contain material which might contribute towards a work with this title—we refer to chapters such as those on "The Religious Element in Crafts and Industries" and "The Restoration of the Village", but the greater part of the book is descriptive and ephemeral. We do not wish to write disparagingly of the book as a whole, but we cannot be enthusiastic about it. The impression given is that it represents the ambitious work of a young man, brought to a rather hasty conclusion. If the author had worked with more judgment, and had spent another six months in carefully revising many of the chapters so as to make the book more homogeneous, it might have become a work of real value. As it is, one may say briefly that it is a book which may be read with much profit for the sake of its information and ideas; but that the reader must receive cautiously the author's many hastily-drawn conclusions and his occasional wild assertions. We have space to quote but two typical examples of the latter: "Thus the modern phase of industrialism in the West is tending to destroy the very roots of culture and originality, and is thus defeating its own ends" (p. 337), and "India will not adopt

Western Industrialism in its modern phase with its too exclusive adherence to the principle of division of labor, its deficient organization towards general well-being." The second quotation is followed by five pages (pp. 448-52) of confident assertions as to what India will and will not do. We have never come across any author who claimed such omniscient powers of prophesy. There is much to be said in favor of the line of economic development which the author foreshadows in this prophesy. Had he stated these ideas as a program of reform to which all efforts at economic development should be directed, so that they might give, under the conditions he has portrayed, the results that he prophesies, they would have commanded much respect and attention. As it stands, this section is a grave blemish on the book. Further, it is impossible but to feel that the author has only a superficial knowledge of the economic and social history of Western Europe. Had he studied that history in detail, he would have been justified in making his frequent comparisons with western conditions which now usually miss their mark, and he would have avoided basing some of his criticisms of the western economic order on the one-sided view presented by the opinions of some of the socialist writers he quotes.

Having said so much to warn the reader to be on his guard, we are glad to add that there is much in the book that we appreciate and value. It is refreshing to find an Indian economist striking out a new direction of thought in relation to the industrial development of India. We agree with Professor Mukerjee that the serious social evils which have been associated with the industrial development in the West should be avoided in India by better organization of society; but it will need a great education of the public to do this which has not yet begun. If things are allowed to develop unguided, social conditions seem to us likely to become quite as bad as they were in Europe. Professor Mukerjee remarks on the growth of individualism and deplors the squalid slums in Bombay and Calcutta. Why, then, is he so optimistic that India will not follow the western lines of development? It appears to us that there is a danger that most of the bad features of European industrial development will be exhibited in India unless a great campaign of propaganda in educa-

tion of the populations of our cities be undertaken. The author believes that there is a great future for the cottage and workshop industries. In this we agree with him. In the early stages of the industrial development it is natural that there should not be many Indians capable of industrial management on a large scale; but there are many young men who can quite successfully manage small establishments, and having gained experience and capital through past successful work on a small scale, many of them will gradually increase the size of their establishments until they, or their sons, own large mills and factories. In many towns throughout India there has been a very striking growth of small flour mills and oil mills, etc., driven by electricity or oil engines. Starting often with a single stone-mill, another two or three are added as the business expands. We think the author has done well to call attention to the big field lying open in this direction; and we think that technical education should be mainly directed to development of small-scale power-driven industries.

The book as a whole suffers from being largely compiled from the author's previous writings such as his thesis for the Premchand Roychand Research Studentship and articles published in many monthly reviews and magazines. The volume is divided into four books, the first dealing with "Social Environment" in which a great deal of useful material is mixed with obvious platitudes. The second book is purely descriptive, the successive chapters dealing with different cottage and village industries—mainly, however, as they occur in Bengal and parts of the neighboring Provinces. This descriptive portion of the book occupies 200 pages and is full of very useful information partly compiled from official documents, but to a very great extent the result of the author's own enquiries in the rural districts of Bengal. The photographs of different village industries are very interesting and useful, and are well taken and reproduced. The third book is brief and is devoted to "Credit and Trade Systems". Here the chapters on "The Organization of Rural Credit" and "The Organization of Rural Trade and Transport" contain much useful information. The fourth book deals with "The Economic Progress of India", and contains the only unsatisfactory part of the volume. We could find here on almost

every page something with which we disagree, or which is untrue, or which is inapplicable at the present day, although it may have been true twenty years ago.

We are grateful for an Introduction to the volume by Professor Patrick Geddes in which he has given us with singular clearness the difference between the *paleotechnic* or early Industrial age, with its confused jumble of productive efforts and social neglect, and the *neotechnic* industrial order in which the greatest advantage is to be obtained from the triumphs of mechanical invention by so organizing the whole of society that social losses are eliminated and benefits well distributed.

H. S. JEVONS

The Governance of India, being a commentary on the Government of India Acts of 1915 and 1916, with additional chapters on Indian Local Government, the Indian Army, Indian Finance and the Native States of India. By K. T. SHAH, B. Sc. (Econ., London). Bombay: Ram Chandra Govind & Son. 1917. Price Rs. 3.

The frequent appearance of books on the Indian Constitution or Administration shows that a new interest is now being taken by Indian scholars in the study of Indian constitutional and administrative questions. Such a study has been facilitated by the enactment of the Consolidation Statutes of 1915 and 1916 which our author takes as his back-ground upon which to trace the outlines of Indian political institutions.

In an Introduction of 23 pages the author describes what he calls "the special difficulties of an Indian writer" on the Indian Constitution. If, however, he had consulted certain recent publications, many of his so-called "difficulties" would have disappeared, and he would not have made little of "indigenous writers" as only ministering to the needs of "the undergraduate world".

The body of the book is divided into twelve chapters corresponding, more or less, with the different chapters of the Act. The author's plan is to take a few sections of the Act and to follow them up with long commentaries. The twelve chapters deal respectively with the Home Government, the Secretary of State, the Governor-General Council, Local Government, the Indian Legislatures, the Public

Services in India, Judicial Administration, the Church in India, Local Government in India, the Indian Army, the Native States of India, and miscellaneous items. There are also two appendixes, one dealing with Indian Finance, and the other containing the Government of India Amendment Act of 1916. We think that it would have been better had the author incorporated his notice of the amendments with his discussion of the original Act.

The author frankly expresses his own personal opinions on the most controversial questions of the day. The goal of educated India, according to him, is "that the real Government of India should be in India responsible to the people of India" (p. 16), and that "the effective powers of no authority in England, however constituted, should be increased at the cost of the authorities in India, if our ultimate goal is self-government in India". He desires "Parliament to abandon altogether the principles which have so far governed the Empire of India", for "the myriad problems of India must be and can be solved only by the Indians in India. Strangers to Indian life and sentiment, animated with the nobler motives which have governed the best of Englishmen, may be efficient rulers—may even be good rulers—so long as the functions of the State are no more than those of a policeman. Change the ideal of the State, and no one people could govern another, especially those utterly dissimilar in their habits and sentiments as the Indians and the English". It is needless to quote more of such passages—they are sufficient to show that the author writes as a partisan of the "Home Rule" school of Indian politics (*cf.* pp. 174-8). Though this may detract from its value as a scientific study of the Indian Constitution, yet one cannot but admire the freshness of the author's views, and the forceful manner of their presentation, as, for example, in the section dealing with Provincial Autonomy (pp. 112-9).

When the author brings out a second edition of his book, we hope he will correct his statement on page 176 that the Education Department of the Government of India deals only with matters educational, for in fact the same Department deals also with municipalities, local boards, public health, and matters ecclesiastical, which the author places under the Home Department (p. 75). Nevertheless the author's

comments are in general the result of wide study, and they will afford interesting and instructive reading to students of current Indian politics.

P. MUKHERJI

Year Book of the Jheria Mines Board of Health for 1918. Published at the office of the Jheria Mines Board of Health, Dhanbad, district Manbhum. 1918. pp. 146.

The Jheria Mines Board of Health is in charge of the sanitation of the largest and richest coal-field of India and the efficiency of its work affects not merely the health of a hundred-thousand workers in the mines but also the prosperity of the coal mining industry. The Board is to be congratulated, therefore, upon the exceedingly practical Year Book which it has issued and which it circulates free to all mine-owners in the Jheria coal-field. After an explanatory preface the volume contains a reprint of the Mining Settlement Act of 1912 and of the Rules framed under the Act which give the Board and its Sanitary Officers all the necessary directions and power. Then follow the Notifications issued under the Act, and a reprint of the Epidemic Diseases Act of 1897, and the temporary Regulations and Order issued thereunder. Then comes the Board's Annual Report for 1916-17, and the bulletins issued by the Board, dealing with such subjects as the causes and prevention of cholera, the notification of infectious diseases, the habits and life-history of the mosquito, the diseases conveyed by it, and the precautions which should be taken to combat them. We next find reprints of a series of sanitary placards intended to be posted in colliery premises. Both the bulletins and the placards are exceedingly clear and practical, giving minute directions for the sanitary precautions necessary to preserve health in any city or industrial community. They would serve as most useful models for municipalities to use or adapt to local circumstances throughout India. Part VII of the volume contains a reprint of the Report of the Committee on the Housing of Labor in the Jheria Coal Field and the Government Resolution thereon. Part VIII contains information on most varied subjects that may be useful to the managers of Jheria mines; and the volume ends with an appendix of forms for official notifications.

Introduction to the Study of Indian Economics. By V. G. KALE, M. A., Fergusson College, Poona. Second edition. Poona: Aryabhushan Press. 1918. pp. 8, vii, 514, v. Price Rs. 5.

Seldom, if ever, has a book on Indian economics met with so ready a reception from the public as has been accorded to Professor Kale's text-book, if we may judge from the fact that a second edition was called for within a few months after publication of the first edition. Undoubtedly the public demand is thoroughly justified, for the book is a great advance over everything of the kind relating to India hitherto published. Not only does it cover a wide field; it is distinguished by a philosophical spirit and an impartial and balanced judgment, such as have unfortunately been conspicuously absent from the previous writings of almost all Indian authors about the economic conditions of their country.

It will be of interest briefly to review the subject matter covered by the book. The first two chapters are of a general character and discuss the peculiar economic conditions of India and its ancient civilization, the nature of the economic policy of the State and the importance of economic studies in defining it. In the second chapter we have a more specific discussion of the Indian outlook—both spiritual and material. The character of the civilization in India is briefly considered, and the relation of religion to material progress. This leads up to a discussion of Indian ideals and an attempt at a reconciliation of the æsthetic ideal with the material outlook of progressive western nations. We begin in the third chapter the concrete discussion of the factors of production. The characteristic features of Indian agriculture are discussed and indicated by a summary of agricultural statistics. It is pointed out that the mass of the Indian people attribute to the soil almost exclusive productive capacity, and other industries appear to them more or less parasitical. This was the view of the physiocrats of the 18th century, and the author regards it as a natural opinion in a social economy where agriculture predominates. The fourth chapter is entitled "Human Effort" and deals with labor as a factor of production. The peculiar characteristics of labor in Indian agriculture and in the village crafts and in the factories which are springing up in industrial centres are dealt with in considerable detail, a special reference being made to the

shortage of labor-supply for industrial purposes and the great wastage of labor power now prevalent. The succeeding chapter deals with "The Part of Capital", its investment in improved implements, the hoarding habit, the conditions of saving, and the mobilization of capital by banks and companies. The latter point is taken up more fully in the sixth chapter which is devoted to the organization of production both industrial and agricultural. In the next chapter the population question is considered from various aspects, and in the eighth chapter we have the economic revolution traced through all its stages, due to the growth of foreign trade and extension of railways.

Subsequent chapters are devoted to "Commercial Policy"—*i.e.*, whether freedom of trade or protection will be most beneficial to India, to "The Currency System", and to the discussion of the "Foreign Exchange", including Gold Exchange Standard. Then follows a discussion of indigenous banking and of the modern growth of Exchange Banks and Joint Stock Banks: and the co-operative movement is then described. The later chapters are devoted to the economic aspects of certain broad social questions. We have first of all an admirable discussion of the relation of the State with land-lords and tenants involving a summary and critical examination of the various Tenancy Acts of the different Provinces. Then, in Chapter XV we have a description of the relations of labor to the growth of the factory system, and the necessity of State regulation. In Chapter XVI is a description of Taxation which touches on the nature of land-taxation and on the Permanent Settlement, on the income tax, and various other questions. The last chapter begins with a description of price levels and the Quantity Theory of Money, and passes on to the description of the effects of high prices and of speculation, and to a description of the standard of living and the relations between consumption and prosperity.

On the whole the book is remarkably accurate, considering the number and variety of the subjects it deals with. Further inquiry and research might, we think, have led the author to present some important facts which are omitted, and to arrive at different conclusions on certain important questions; but on the latter he has faithfully reflected the prevailing opinions, and it could hardly be expected that he could personally test all accepted theories.

We may briefly examine a few of the subjects on which he touches, as, for example, the extent to which indigenous capital is invested in modern industrial concerns (pp. 96-8). The author states that almost the whole capital of the cotton mills has been raised in India; that the tea plantations are most of them joint stock concerns registered in the United Kingdom; that the jute industry also is "financed by European capital"; and that "the bulk of the capital invested in the coal and gold mines has been imported." If this had been written twenty years ago it would have given a fairly correct impression, but the situation has changed very much in recent years, more and more Indian capital having flowed into the large-scale industries originated by European enterprise, whether still controlled by it or not. For instance the coffee and tea plantations of the South, and the smaller tea estates of Darjeeling and many other districts have been increasingly bought by Indians, besides their purchases of shares in companies, so that probably a fourth to one-third of the capital of the industry is in Indian ownership. The jute mills and coal and gold mines were practically all, except the smallest, started with British capital, but a steady sale of shares has very largely transferred the ownership to Indians. Many small coal mines have been opened by Indians, and it may be estimated that in privately owned mines, as well as companies, about half the capital now belongs to Indian proprietors. In miscellaneous industries an increasingly large proportion of capital is Indian. In enterprises originated in Bombay capital is almost wholly Indian from the start; but in Bengal and Upper India the European firms often start enterprises with the intention of selling out a large part of their share-holding to the public, mainly Indian of course, as soon as the payment of a good dividend enables a handsome price to be had for the shares.

Another important case of erroneous information, as we believe it to be, occurs in the section dealing with the effects of the land tenure system (p. 401). We read: "The State takes a certain well-defined share of the rent received by the landlord from his tenants, say 60 per cent. Such a large share could be justified on the ground of State proprietorship of land, but if it is a tax, it appears

to be comparatively too heavy". The author writes: "say 60 per cent" as if he thought that that is approximately the true average figure; but we think that a brief personal inquiry in two or three widely separated parts of the country would soon have convinced him that this is a gravely inaccurate statement. He appears simply to have repeated a percentage which has been currently quoted for more than a generation. Meanwhile rents have been rising far more rapidly than land revenue. Professor Slater quotes for Madras a case in which he found the land revenue Rs. 5 per acre for land of which the rent was Rs. 30 per acre, and another in which the revenue was only Rs. 1.8 per acre and the rent Rs. 40 per acre. In the Punjab canal colonies the land revenue demand, for much of the land, is only one-tenth to one-eighth of the rent obtained. In the United Provinces, in some instances which have come under our own notice, there was considerable variation in the ratio of revenue to rent, the average being about 35 per cent, and the lowest figure in a district at some distance from a railway about 20 per cent, the highest nearly 50 per cent. The revenue is much less than 20 per cent of the rent in lands near growing towns under an old settlement. In recent settlements in the United Provinces the net assets have been taken at less than the actual rentals, and owing to the operation of the Government of India rule limiting the increase of total revenue at a new settlement to 33½ per cent, except with special permission for exceptional reasons from the Government of India, the settlement officer could not take as much as 45 per cent of the net assets, which was the standard adopted in the Government of India Resolution of 1902. The revenue cannot in such cases be more than from 35 to 40 per cent of actual current rentals; and as the settlement is for thirty years and prices are rising and likely to continue doing so, it is probable that 25 years hence the revenue will be on the average but 10 per cent of the rate of rent actually collected. The fact is that the rayat's standard of living determines his earnings, and competition leads to so much of the surplus (*i.e.* economic rent) as is not claimed by Government being paid to somebody as landlord. This is to a great extent true even in ryotwari tracts. Another misleading statement is to be found on page 445 in the

comparison of the incidence of taxation in India and in the United Kingdom. Here the per capita income is taken at Rs. 35 in 1913-14 although on page 158 it is estimated at Rs. 45 in 1915-16, equivalent to an increase of nearly 30 per cent in two years. In our opinion Rs. 45 is a low figure for 1915-16, and we would refuse to accept any figure lower than Rs. 42 for 1913-14, or more accurately for the average per capita income of the three-year period 1912-13 to 1914-15, a three or four years average being necessary on account of the great variability of the harvests. On this basis the national income of British India was 1050 crores, and the taxation 95.3 crores in 1913-14, which is approximately 9.1 per cent, instead of the figure 10.5 per cent given by the author. The similar ratio for the United Kingdom for the same year the author gives as 11 per cent. As the standard of living and thus the intensity of wants is much lower in India than in England, it is difficult to say whether 9 or 10 per cent in India represents a greater sacrifice than 11 per cent in the United Kingdom. We agree with the author that it depends on efficiency of the expenditure of the public revenues.

We think it necessary to express our disagreement with the author when a little further on (p. 447) he confuses land revenue with income-tax, and objects to the poor rayat who cultivates an uneconomic holding being taxed in land revenue at the same rate per acre as if his fields were part of a larger holding capable of supporting him; because to meet his total expenditure, including the land revenue, he must find some industrial or other employment for part of his time. The rayat may even have to borrow to pay his land revenue. The author regards this as "a serious defect of a general property tax," and would prefer that persons earning small incomes by cultivation be totally exempted from land revenue as they are from income tax. He does not inquire whether this would be reasonable, nor what the effects would be. It is not necessary to consider whether land revenue is a rent or a tax. It is reasonable under present conditions to call it a land tax, as the author does. But, as a land tax it is clearly a tax on the economic rent of land; in other words it is not personal like income tax, but attaches to the land, just as a customs duty does to the goods. Hence whoever

uses the land may reasonably be required to pay the tax. It is his own concern if he chooses to do his cultivation on so small a plot of land that he cannot live on the profits. Since so many persons do choose to cultivate uneconomic holdings rather than migrate permanently to cities, the only result of abolishing or reducing the land tax on small holdings would be that the law of inheritance requiring equal division of the holding could operate still further, and the holdings would become still smaller, whilst the State would lose its revenue.

We give these criticisms, not with a wish to depreciate Professor Kale's work, but rather because we hold it to be of the highest national importance that a book which will be deservedly widely read, and is likely to be regarded by all educated Indians for many years to come as the standard book on the economics of their country, should be scrupulously accurate in its statements. This appears to be of especial importance in regard to the type of subjects to which we have referred, which might so easily become burning political questions. If political parties base their policy on a false conception of facts, it will indeed go ill with self-government in India. Professor Kale has, indeed, provided a gigantic task for the whole body of economists in India to undertake. He has presented us with clear and concise statements of the current theories and accepted opinions on almost every question of economic interest. To prove his statements right or wrong, to assess the exact degree of truth in them, and to find out the whole truth regarding the various subjects, taken chapter by chapter, and section by section, might well be the task of all economists in India for the next ten years or more. We look forward with pleasurable anticipation to successive editions of Professor Kale's work, revised from time to time in the light of the results of these researches.

H. S. JEVONS

Town Planning Towards City Development. A Report to the Durbar of Indore, by PATRICK GEDDES. Part I. Indore: Holkar State Press. 1918. pp. xvii, 203, and 8 folded plans.

During the past four years Professor Geddes has reported on a score of Indian cities, and he came to the study of Indore with a ripe and unequalled experience. His bold

ideas and the freedom with which he crosses swords with the protagonists of the imperialist-mechanical age wherever he finds them have led hasty observers to regard his conceptions as visionary ideals and his proposals as impractical. This report on Indore is the best answer to such criticisms, for here we find the ideals of life intimately interwoven with the practical suggestions for achieving a new order of life in which these ideals may be realized and in which economy of expenditure is most carefully studied. Some nine or ten months were occupied in the study of the city and in writing the report of which this is the first of the two volumes; and it is not surprising, therefore, that the report exhibits an intimate knowledge detail of the existing city rarely attained by a town-planner himself.

The present volume contains 42 chapters grouped in 12 parts. The first part is a preliminary survey and interpretation of the City of Indore, mainly historical. The second part deals with Public Health, the third with new industries and the new Industrial Town. Then come chapters devoted to Water Supplies and Drainage, followed by a part relating to Suburban extensions, Housing and Sanitation. The fifth part deals with the designing of parks and gardens the purification and bunding of the river, and with proposed educational and scientific buildings.

The next part takes up the improvement of the business quarters of the City—the Corn Market and the crowded bazaars. Other parts deal with school planning, with cleansing and drainage, and with the enlargement of the railway station and its relation to the streets of the neighborhood.

This summary of the parts gives but a poor idea of the very wide range of the subjects which are treated and which are enumerated in detail in the twelve pages of the Contents. The object and scope of the Report cannot be better stated than in the Professor's own words as written in the introduction to this volume, from which we take the following quotations:—

"A City Report naturally opens with a Plan of the existing City as its frontispiece. It proposes its Improvements and Extension, with detailed plans as far as may be. It then combines these, as clearly and fully as scale, etc., make practicable, upon a concluding City Plan,

"The first Plan shows the City as it is; the following ones as locally improving; and the last as improved and extended.

"But this is too bare and crude an indication of any Report and Plans; and a fuller statement is necessary; and this the more since the [printed] plans are but a pale reduction of the large and fully colored originals.

"As the physician must make a diagnosis of the patient's case before prescribing treatment, so with the planner for the city. He looks closely into the city as it is, and enquires into how it has grown, and suffered. And as the physician associates the patient with his own cure, so must the planner appeal to the citizen. Hence the Indore reader should go round and look at the City for himself; and with its Plan for partial guide, he may check, and amplify, the diagnosis; and perhaps accelerate the treatment.

"As the preliminary Survey and Interpretation proceeds, the City and its Quarters, and how they have developed and deteriorated, grow clear; and the making of Improvements, the planning of Extensions, will be seen as no mere application of a standard remedy or arbitrary prescription. For our Improvements are primarily those of urgent local hygiene, and of conservative surgery; and our Extensions must be on these lines of growth on which the City presses or which its surroundings best admit."

"Successful treatment must be general and constitutional for though every disease has many outcomes to be relieved, health is a Unity. Hence the main concept, always before the mind, is the City itself; the City Past, Present and Possible and thus as a vast and complex life, the tree of which we, and all our generation, are but a season's leaves; yet which has to continue its growth, and to bud for next season."

Turning now to examine some of the Chapters, we find under the title "Indore from its early beginnings", matter of striking interest and importance to all students of history and economics, who ought to know more than they generally do of the historical evolution of the cities, and of the phases through which they have passed, in response to the general political and economic changes affecting the whole country.

Professor Geddes soon obtained convincing evidence that the portion of the City known as Juni Indore is indeed

its historic centre. "This is in itself a minor labyrinth, and of some intricacy" we read, "yet it soon yields to a study of town and plan together. First, and still central, we have the characteristic type of Brahmin Street which is so common throughout India, best developed in the South as the Agradharam Street. Here, as wherever possible, it runs North and South, with its present temples at one end, and what remains of its Bathing Ghats at the other. A street runs on each side parallel to this, a little distance behind its houses, for humbler castes and secular uses. Here in fact is "the Three Streets Plan" so familiar to city students in the West, surviving plainly, for instance, in my own University City and Ecclesiastical Capital of St. Andrews, or again of the corresponding Abbey City of the old Canon-Gait, the Westminster of Edinburgh: in short a type decipherable in many cities, between these geographical extremes of India and Scotland. The old main street now bears the distinctive name of Shanigali, from the Shani Temple at its head: but its Saturnine deity seems to indicate that this was not the original Temple, or at any rate not the main one."

It is hardly possible to summarize the historical survey; and we think it is of sufficient general interest to warrant some further extensive quotations.

"Looking now at this whole geographical situation, we see how admirable is the location it afforded for this peaceful little religious centre. For a cult so fundamentally riverine and pastoral as Brahminism no better situation could be desired; in which the bathing ritual of sunrise and sunset could be followed at their best, in which the economic need of pasture was assured by permanent rivers, and with these protecting the little religious town, which was thus in isolation from the great stream of secular affairs, and yet conveniently near the great road between Bombay and Agra.

"But how did this little religious centre arise? Presumably, besides its natural advantages, as a stage, and an attractive resting-point, upon the route of yogis and pilgrims between the holy city of Ujjain and the doubly sacred river Narbudda.

"The early unimportance of Indore in secular history—a point at first of perplexity in view of its military im-

portance in recent centuries—is thus explained. And though political greatness and material wealth have been wanting in its earlier ages, it is much to find the origin of our city as a centre of the plain living and high thinking of holy men of old.” . . .

“Returning to the History of the Town we have still to find the seat of its temporal authority. This remains obvious in the vast Palace, or rather rambling growth of mansions, of the old Brahmin family of Rao, Zamindars of Indore since the Mohammedan age, and doubtless earlier, of which the head is to this day sometimes spoken of in his neighborhood as the ‘Raja of Juni Indore’. The wealth and influence of this family was not merely applied to domestic uses; for to the enlightened policy of one or more of its head, we owe the suburb of Byasphala on the west and also the Raoji Bazar on the east, both established for new immigrations of Brahmins thus attracted to Juni Indore,. In this way arose the present, and still compact, Brahmin town, with its menials forming their Mohallas at various sites around, as notably at Katkatpura and Kumawatpura, (also probably to the West and probably some little way N. W. and N. E. also).

“It is interesting to note the clear-cut stratification of castes which the social Section of such a town presents. Thus, starting from the central street of Shanigali, and proceeding eastward, we leave the old original Brhmins, we pass through the Raoji Bazar of old immigrant Brahmins, and thence come to the Bhat Mohalla, a group of bardic origins, claiming to be Brahmins of later date, but of less fully recognised caste-rank. A little further east again, we have the cultivators in Malipura, and east of these again, the vegetable sellers of the almost rural Murai Mohalla.

“Only after all or most of this area was essentially settled, do we find indications of the coming of the Moslems. The positions, of their Mosques in all three cases, (south-east, south-west and north) are outside the old town. As already mentioned, the original temples seem to have been destroyed, as old stones suggest, and as the domestic, not monumental, architecture of the present ones indicates; but otherwise the town has substantially kept (or has recovered?) its old character. The Mohammedan Rule was here of its more tolerant variety, even the stern Aurangzeb

sending presents to its Zemindars, which are still family heirlooms. Its military defences however, became fairly considerable, doubtless as the Crescent waned, as is indicated by the large remaining rampart base, the black basalt wall running straight along the south bank of the river and pushing this northward. After this time would necessarily arise new Ghats, notably surviving, with their inconspicuous Temples, at the angle where the River turns north. . . . Since the Mohammedan time the basalt Rampart has been largely used as a quarry of building materials, and thus the full tracing of its course cannot here be gone into".

There are many more pages of historical matter, but we have not space for further quotations. In the chapters immediately following, the most notable is that devoted to Public Health. The author has much to criticise, not only in the existing insanitary slums of Indian cities, but also in the well-meant attempts to apply the European sanitary systems of the nineteenth century to city improvements in India. He points out how the advance of bacteriological knowledge and discoveries of disease-bearers like the mosquitoes and the flea involve a totally new sanitary practice. This we might call "naturalistic" (though he does not use the term). The system involves the study of the plant and animal life with a view to fitting the human being into a life cycle (whereby all the waste products of human life which are so deleterious are disposed of by keeping domestic animals and by the natural action of the sun and soil bacteria. Thus plague amongst mill-workers he traces to grain and crumbs of food scattered by the workers in the mill or its compound and in their *chawls*. The remedy is to have the floor of every mill carefully swept up after the meal time and for the workers to be compelled, if necessary, "(1) to set up a pigeon-cote, so as to have any remaining crumbs eaten up forthwith; and (2) to keep cats, which would at night soon clear out any lingering rats altogether." The matter is further developed in Chapter XII where a simple plan of sanitary gardens for avoiding the enormous capital outlay needed by a sewer system is worked out.

The most important parts of the remaining chapters are those which deal more directly with the Principles of Town

Planning and their application to various districts of Indore. Chapter VI is of especial interest as dealing with the New Industrial Town at Indore. There are already three cotton mills and a brush factory and flour mill situated at the north-east side of the town. Beyond this there is a wide stretch of flat open land. All this has been planned by Professor Geddes as a large industrial suburb with sites for new mills and factories. A plan of railway sidings has been laid down in such a manner that nearly all the proposed factory sites can be served with railway sidings. On the other side of the area reserved for factory sites is a large area which is to be laid out specially for workmen's dwellings on garden city plan, the details of which are shown in a large plan. This scheme for the industrial extension of the city and for providing decent homes for a very large population of mill-workers is not only extremely interesting, but is also of first-rate importance as an example of what may be done in other Indian cities.

We would like to draw attention, if space permitted, to the proposed re-planning and control of the corn market, to the discussion of education and the location of school and college buildings, and many other matters of general interest in this comprehensive volume. We trust that the Indore State will have had a sufficient number of copies printed to put the report into wide circulation as it will be of the greatest interest to all students of civic and municipal life in all parts of India. We look forward with interest to the appearance of the second volume.

GOVERNMENT PUBLICATIONS

Report of the Indian Industrial Commission, 1916-18.
Calcutta: Superintendent of Government Printing,
India. 1918. 8vo. pp. xx, 355, xviii. Price Re. 1 or
1s. 6d.

The long expected Report of the Industrial Commission is a comprehensive document dealing with the causes of the industrial backwardness of India, a review of its industrial resources in raw materials and power, and proposals for measures to be taken by Government for stimulating and assisting the growth of industries in India. First we find the rural conditions of India and the changes introduced by railways briefly discussed; then the various industrial

districts and existing large-scale industries each receive two or three pages of discussion which will be most valuable to economic students. The following chapter describes the raw materials available—agricultural produce, minerals, and the products of forests and fisheries. We next find discussions of the industrial deficiencies of India and of the relation of industries to agriculture. Chapter VI considers all the various sources of power and advocates a hydrographic survey being undertaken by Government. Chapter VII treats, perhaps rather too briefly, the share taken by Indians hitherto in the industrial development of the country; and the following chapter relates the industrial policy of Government in recent years.

The foregoing is all more or less of an introductory character; but in the next few chapters we get to the details of the relations between Government and industrial progress. In Chapters IX and X we have discussion of the existing organization of scientific and technical services and provision for research work, and for industrial and technical education. The system of commercial and industrial intelligence is then criticized and some proposals are made; and then we come to the Government purchase of stores. The advantage of centralising the purchase of stores in India is fully recognized and it is suggested that a general purchasing department under a Controller General of Stores with his head-quarters at Calcutta be established. It is proposed that all indents for stores required by provincial officers should come through the local Director of Supplies, who would first examine the indents, and arrange for local purchase and inspection where this is possible. At present the inspection of stores at the India Office is a great convenience to the Public Works Department in India and is an inducement to the purchasing of stores abroad. There is no reason why efficient inspection by experts of purchases made in India should not be organized as recommended by the Commission.

We have next a short chapter on land acquisition, and a useful proposal that under certain circumstances Government should compulsorily acquire land on behalf of an industrial concern. Chapter XIV on the technical assistance to industries by Government is of exceptional interest. Here we find a division of industries into: (1) cottage industries,

(2) small organized industries, (3) large organized industries. Cottage industries can be successfully assisted by small travelling demonstration schools which go about from village to village where the industries flourish bringing to the notice of weavers, metal workers, and the like, improvements in looms and patterns, or in tools. The success of the Japanese in organizing the marketing of products of cottage industries is noted. The large organized industries are initiated only by big capitalists who employ their own technical experts, and Government assistance is required only in supplying the preliminary information necessary to decide the location of the works, sources of raw materials, and so forth. The industrial future of the country will depend, however, more upon the successful establishment of numerous small industrial undertakings which require the managing capacity of young Indians with only a few years' experience. If successfully managed, many of these will ultimately grow into large undertakings; and we are glad that the Commission has recognized that it is especially these undertakings, as well as the cottage industries, which need the fostering care of the provincial government through the provincial Director of Industries whom they propose shall have an adequate technical staff.

In Chapter XV we have observations on many subjects, such as the prevention of adulteration, prospecting and mining rules, electrical regulations, patents, and the registration of trade marks and the partnerships. The next Chapter dealing with the welfare of the factory labor, is of the greatest importance and we are glad that the Commission has recommended that close attention is needed to effect a rise in the standard of comfort and an improvement of public health in the industrial centres, and that these ends can be attained only by education, improved housing and a general policy of betterment. Besides improved housing, and sanitation, they recommend attention to facilities for healthy amusements, shorter hours of work and the promotion of co-operative societies for the sale of articles to factory operatives. The conditions of Bombay are so exceptional that several pages are devoted to propose special measures for the industrial classes of this city.

The next two Chapters deal with cottage industries and then we have a rather too brief consideration of railway and water transport in its relation to industries. The next

subject is industrial finance, wherein the sources of capital for industrial enterprises are reviewed and the nature of the financial assistance to be given by Government is considered. In spite of the fact that the Tata Industrial Bank was started without Government assistance, the Commission is of opinion that industrial banks are needed that will work with the help of the Government industrial experts whose appointment is proposed. Such banks would be financially sound. In the meantime it is proposed that a Government guarantee be given to loans made by the existing banks. Finally, the principal recommendations of the Commission are gathered into two chapters on the provincial departments of industries and a proposed Imperial Department of Industries. In each province they would have a Director of Industries assisted by a Board of Industries; and in the larger provinces there would be a Deputy Director and a staff of industrial engineers, chemists and other specialists and teachers. To ensure that the Departments of Industries, Agriculture, and Co-operative Credit work in harmony it is proposed that they should be under the same member of the Provincial Executive Council. The Imperial Department of Industries is needed for the direction and co-ordination of the general industrial policy of the country. Many existing Departments of the Government of India would be transferred to this new industrial department, classified as follows:—

GROUP I.—Geology and Minerals. Salt. Explosives and Petroleum. The Chemical Service and chemical research. Government factories for research or demonstration.

GROUP II.—Stationery and Printing. Commercial and industrial intelligence. Stores. Factories Act. The general encouragement of industries. Technical and industrial education.

GROUP III.—Inventions and Designs. Steam boilers Acts. Electricity. Ordnance Factories. Inspection of ordnance manufactures.

It is proposed to establish an Imperial Industrial Service which will be recruited from specially trained men in India and with experts from abroad. The members of the Imperial Service will be lent to the Provincial Industrial Departments in accordance with their requirements as is done with the educational, agricultural and other services.

The cost of the scheme is worked out in some detail on a pre-war basis and the recurring cost of the proposals is estimated at Rs. 86,00,000, whilst the total capital expenditure extended over seven years is put at Rs. 2,16,00,000. This includes provision of all the necessary pioneer and demonstration factories besides hydrographic and other surveys and the building of technological institutes, industrial schools and engineering colleges.

The recommendations of the Commission have evidently been considered with very great care and with a real understanding of the industrial conditions of the country. We have no quarrel with the idea of an Imperial Industrial Service, because, although we believe in the greatest freedom of local initiative being allowed to the provinces, it is obvious that highly specialized experts, who must be paid high salaries if they are to be of any use, would be an impossible luxury for most of the provinces by themselves. Their advice would be needed only for a month or two in each year, the men of more generalized training and special business experience being employed permanently in each province to do the actual work of promoting and assisting industrial undertakings. The danger of centralization must certainly be avoided; and for this purpose the Imperial Department could only have the duty of advising the Local Governments and assisting with information, not of controlling their industrial activities.

The Report of the Commission is followed by a Note from the pen of the Hon'ble Pandit Madan Mohan Malaviya giving reasons for differing from the other members of the Commission as regards several of their conclusions and recommendations. He commences with a historical account of Indian industries noting the effect of the early development of the foreign trade with European countries and of the English industrial revolution. He traces the effects of the growth of railways and considers the Government industrial policy in recent years. After dealing at length with the question of industrial education he takes up banking and finally the organization of the proposed scientific and technical services. He calls special attention to a note submitted by Mr. Puran Singh of the Dehra Dun Forest Research Institute which raises a very important question. The Commission are in favor of scientific research work

which has an industrial objective being carried out by officers under the administrative control of the Government, such control being centralized in the administrative head of the Department. There is, we feel, a great danger in going too far in this direction, because its efficiency would depend entirely upon the wisdom of the administrative head. Entire lack of direction and control undoubtedly leads to much duplication of work and dissipation of energy; but too close a control might kill the true spirit of scientific enquiry and would be particularly galling and discouraging to a man of originality, who might be frequently prevented from following up new lines of work which he considered promising. The only solution we can offer is that there should be some men working under control, and others working with a great amount of freedom in scientific institutes connected with universities or actually in research rooms of scientific departments of the University. Promotion to posts enjoying such freedom would be given as the result of approved ability and originality. We feel that it is impossible to over-estimate the importance of linking up the research work on the one hand with the universities and on the other hand with the centres of industries; and transfers of officers between special centres so that each should have both industrial and university experience should be the rule.

We hope that the labors of this Commission will bear greater fruits than those of many previous Commissions. Our own theory is that every Commission of enquiry should be required to carry out the measures of reform which it proposes. This would ensure its proposals being practicable, and it would also ensure something practical being done to realize the objects for which the Commission was appointed, making full use of the knowledge acquired by the Commission for making its report. The present is the time for action, whilst India is still to a great extent protected from foreign competition by the effects of the War.

H. S. JEVONS

Proceedings of the Board of Agriculture in India held at Poona on the 10th December, 1917, with Appendices. Calcutta: Superintendent Government Printing. 1918 pp. 185. Price As. 13 or 1s. 8d.

Among the many subjects that came up for discussion before the Board not a few were on matters of economic

organization which we are glad to notice in this short review. The question of the size and distribution of land-holdings and their consolidation into economic holdings excited a good deal of interest and the Hon'ble Mr. Keatinge, Director of Agriculture, Bombay, Professor H. Stanley Jevons of Allahabad, the Hon'ble Mr. Parshotam Das Thakurdas, Hon'ble Mr. Godbole, and Doctor Harold Mann and others took part in the discussion. As a result the Board resolved that Provincial Governments be recommended to make a close investigation of the question in consultation with the registrars of co-operative societies with a view to taking such legislative action as may be necessary. The question of the value of phosphatic manures and the manufacture of superphosphates on a large scale in India seems to us to be of vital importance and we are glad that the Board's attention has been directed to it. The importance of elementary agricultural education cannot be overrated for a country like India, and the Board's discussion of the report of the Simla Conference embodying a tentative scheme for the establishment of rural schools on the model of the Loni school, near Poona, is full of interest. The Board realises the value of rural education, but recommends that the education Department should be responsible and seek the co-operation of the Agricultural Department in the matter. The view was emphasized that research and demonstrations are the real work of the Agricultural Department. Another interesting item of the discussions was the review of the present position and prospects of the sugarcane industry in the various provinces of India, both from the agricultural and manufacturing standpoints. It was suggested that a Bureau of Information be formed for pushing and improving this industry.

We find a good deal that is stimulating in these proceedings and we have no doubt students of agricultural economies will find therein suggestions for further inquiries, and much substance for reflection. The Board was lucky in securing as its chairman His Excellency Lord Willingdon, Governor of Bombay, whose interest in the promotion of agriculture and personal enterprise in farming in this country are well known.

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN
ENGLAND ON THE LAST DAY OF EACH MONTH

Held in the following form	31st May 1918	30th June 1918	31st July 1918
	£	£	£
1. Gold in India ...	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>
2. Cash placed by Sec. of State at short notice	6,000,011	6,000,075	6,000,008
3. British and Colonial securities (value as on 31st March 1918)	24,920,153	21,778,058	19,818,604
4. Securities since purchased (at cost price)	3,641,543	6,913,687	8,918,435
Total ...	34,561,707	34,691,820	34,737,047

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES
AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND
THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

Year.	31st May	30th June	31st July
	Rs.	Rs.	Rs.
1916 ...	14,46,85,000	18,22,74,000	20,41,51,000
1917 ...	32,48,70,000	39,56,93,000	35,96,25,000
1918 ...	19,95,93,000	23,21,37,000	16,20,54,000
<i>Bank Rates.</i>	31st May 1918 <i>per cent</i>	30th June 1918 <i>per cent</i>	31st July 1918 <i>per cent</i>
Bank of Bengal ...	5	5	5
Do. Bombay ...	6	6	6
Do. Madras ...	7	7	7
Do. England ...	5	5	5
<i>Exchange Rates.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
On Demand ...	1 6 $\frac{1}{16}$	1 6 $\frac{1}{16}$	1 6 $\frac{1}{16}$
Telegraphic Transfers ...	1 5 $\frac{31}{32}$	1 5 $\frac{31}{32}$	1 5 $\frac{31}{32}$
8 Months' ...	1 6 $\frac{7}{16}$	1 6 $\frac{7}{16}$	1 6 $\frac{7}{16}$
6 Months' ...	1 6 $\frac{3}{4}$	1 6 $\frac{3}{4}$	1 6 $\frac{3}{4}$
Government Paper (3½ p.c.)	64-4 to 64-8	64-8 to 64-12	67-8 to 67-12
Bar Silver in London ...	48 $\frac{7}{8}$ d	48 $\frac{7}{8}$ d	48 $\frac{13}{16}$ d

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE
OF PAPER CURRENCY, 1918

	31st May 1918	30th June 1918	31st July 1918
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
Total amount of notes in circulation ¹	1,11,52,92,381	1,14,78,68,759	1,21,40,88,089
<i>Deduct</i> ² ...	<i>Nil</i>	<i>Nil</i>	<i>Nil</i> [*]
RESERVE			
Coin and Bullion ...			
<i>In India :—</i>			
Silver coin ...	5,14,88,650	5,65,54,695	8,02,88,720
Gold coin and Bullion	19,12,08,906	21,08,61,645	20,20,81,577
Silver Bullion under coinage ...	75,88,514	2,78,08,781	10,89,97,854
<i>In England : —</i>			
Gold coin and bullion	44,92,770	44,92,770	12,35,865
Securities (at pur- chase price) :—			
Held in India ...	9,99,99,946	9,99,99,946	9,99,99,946
Held in England ...	64,15,80,622	68,39,60,062	72,65,34,577
Total Reserve ...	1,11,54,28,881	1,14,82,91,759	1,21,40,88,089
<i>Deduct</i> ³ ...	1,36,500	4,23,000	<i>Nil</i>
Net Total Reserve ...	1,11,52,92,381	1,14,78,68,759	1,21,40,88,089

1 Figures to the left of the semi-colon indicate the number of *lakhs*.

2 Deduct—withdrawn from circulation by Foreign circles, and in course of remittance to circles of Issue.

3 Deduct—Amount due on Bills drawn by one circle on another.

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(Quarterly Journal of the Royal Economic Society. London:
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MARCH, 1918

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FAWCETT.

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The Founders, The Molders, and the Molding Machine,
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Some Aspects of French Railway War Finance, by STANLEY
 E. HOWARD.

Labor Problems in the United States during the War, by
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NOTES—*The Supply Price of Labor—International Freights
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Also Review of KITSON'S *Trade Fallacies* and KITSON'S
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 DAGGETT.

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Fixed Costs and Market Price, by SPURGEON BELL.

The Operation of the Massachusetts Income Tax, by CHARLES
 J. BULLOCK.

Also Review of *The Town Labourer*, by J. L. HAMMOND.

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The Making of Modern England. By GILBERT SLATER
London Constable & Co. 1913.

A useful general economic history written from the progressive thinker's point of view. The author's aim has been "to set out in language as simple and clear as I can command those facts with regard to the recent history of our country which it is most important for English men and women to know"

An Economic History of Russia. Vols. I & II. By JAMES MAVOR
London J. M. Dent & Sons. 1914.

A monumental work, likely to be the standard work on this subject for many years.

History of the Grain Trade in France. 1400-1710. By A.P. USHER. Harvard Univ. Press. 1913.

A careful and interesting study containing much matter not elsewhere accessible

Economic History of Agriculture in Minnesota. By E. V. D. Robinson. Bulletin of the Univ. of Minnesota. 1915.

A very detailed monograph which is important as indicating lines of useful work for India and other countries.

The Marketing of Farm Products. By L. D. H. WELD.
N. Y.: Macmillan Co. 1916.

Explains American conditions of marketing in manner useful to students of economics and agriculture.

Agricultural Tenancies. By C. E. CURTIS AND R. A. GORDON.
London Crosby Lockwood & Son. 1910.

Contains the important English Tenancy Legislation of 1908.

Estate Management. By C. E. CURTIS Lon.: Horace Cox. 1911.

A useful practical handbook which though applying to English conditions is very suggestive of what should be done in India.

Large and Small Holdings. By H. LEVY. Cambridge Univ. Press. 1911.

First part of the book is a historical account of rural economic conditions leading to a thorough and scientific discussion of agricultural organization.

English Farming Past and Present. By R. E. PROTHERO.
Lond. Longmans Green & Co. 1912.

This would be more correctly denoted a History of Agriculture in England.

The Village Laborer (1760-1832). By J. L. HAMMOND AND BARBARA HAMMOND. Lon.: Longmans Green & Co. 1913.

A reliable historical account of the condition of agricultural laborers in England. Also deals with Enclosures and Poor Law.

BOOKS RECEIVED

Journal of the Indian Economic Society for March 1918.
Bombay: 1918. (Published by Indian Economic Society)
pp. 68. Price Rs. 5. per annum.

Excess Profits Tax Manual. National Bank of Commerce.
New York: 1918. pp. 64.

Report on the Production and Consumption of Coal in India. Tenth Issue. Superintendent Government Printing. Calcutta: 1918. pp. 35. Price As. 12.

Statistical Abstract of the Baroda State. 1906-07 to 1915-16. Department of Commerce and Industry.
Baroda: 1918. pp. iv, 175. Price As. 9.

Report on Co-operative Societies in Mysore, 1916-17.
Government Press. Bangalore: 1918. pp. 57.

Proceedings of the United Provinces Co-operative Conference—Ninth Session, December 1917—Lucknow. Superintendent Government Press. Allahabad: 1918. pp. 42, 16.
Price As. 12. or 1s.

Second Annual Report (1917) of the Indian Economic Society Bombay. Servants of India Society's Home.
Bombay: 1918. pp. 22.

Prospects of Developing Iron and Steel Industry in Gwalior State. By ALAKH DHARI. Alijah Durbar Press. Gwalior: 1918. pp. iv, 48, with appendices.

The War Revenue Act. By EDWIN R. A. SELIGMAN.
Columbia University. New York: 1918. pp. 37.

Loans Versus Taxes in War Finance. By EDWIN R. A. SELIGMAN. Columbia University. New York: 1918. pp. 31.

INDEX

	PAGE		PAGE
Adulteration, evils of ...	156	Co-operation and Fa-	
<i>Ad Valorem</i> Duties ...	317	mines	479 <i>seq.</i>
Agricultural Products,		—, and Famine Relief	486
Ancient India ...	652	—, and Industries	500, 502
—, Implements (See		—, moral value of	362 <i>seq.</i>
under Implements) ...	622	—, and Panches ...	368
Ain-i-Akbari ...	172	—, and Represent-	
Aiyangar, Rangaswami	650	ation	496, 502
Allahabad University,		Co-operative Pronotes	494
Higher Economics		Co-operative Training	
Courses ...	95	Classes ...	366
Annuity Method ...	336	Commercial Services ...	575
Applied Economics ...	8	Co-ordination of	
Arthashastra ...	629	Examination with	
Aryan Culture ...	612	Teaching ...	99
Association Finance ...	288	Consumption of Coal ...	654
		Course B in Economics	98
Badshahnama ...	166	Course (Kos) ...	162
Balance of Trade	514 <i>seq.</i>	Cowries as money	176 <i>seq.</i>
Books Received 148, 304, 448		Current Notes 101, 277, 414	
Building Societies ...	335	Cyclic fluctuations	36, 43
Canton Mint	378, 380	Discount, rate of ...	88
Capital Account ...	578	Diagram, Food grain	
Central Banks ...	370	prices, 1891-1918	
Chanskya	631, 634		<i>to face p. 408</i>
Church, Prof. ...	402	East India Company ...	311
Children, sale of ...	160	Economic Development	
Coal for domestic pur-		and Social Progress	360
poses ...	652	Economics of Education	60, 62

	PAGE
Economics a Field Study	94
Economic Holdings	183, 528
Efficiency of Indian Agricultural Laborer	149
—, of Indian and Eng- lish Laborer compared	150
—, of Labor, measure- ment of	... 458
Emporia, trade	... 15
Engel	... 562
Evils of sub-division	... 228
Excessive sub-division	186
Evestment of Capital	... 23
Evolution	... 83
Evolution of Man	340, 342
Export duties	... 511
Finance, aims and im- portance of	234 <i>seq.</i>
—, definition of	... 231
Financial position of India	571 <i>seq.</i>
Finance Public (see under Public)	232 <i>seq.</i>
Financial Statistics	137, 296, 441
Finance, three systems of	287, 240
Firewood, consumption of	658
Food grains, consump- tion of	... 406
Foreign Journals, con- tents of	139, 300, 443
Fragmentation of hold- ings—France	... 217
—, Germany	... 218
—, Switzerland	... 221
—, Other countries	223 <i>seq.</i>
—, Typical cases of	207

	PAGE
Fremantle, S. H.	... 687
Funds, sources of	... 579
Geddes, Patrick	81, 351
Geography and Demo- graphy	... 5, 6
Geographico-economic principles	... 2
Gold Standard Reserve	580
Gregory Smith's Law	401, 405
Holdings, sub-division of	180
Holdings, fragmentation of	181
Holdings, the shape of	213 <i>seq.</i>
Hoarding of money and bullion	... 178
Hongkong, money market	375
—, Dollar	... 373
Holland, Sir Thomas	... 677
Houghton's Prices	... 45
Hydraulic Model	... 89, 90
Hydro-electric scheme	669
Hundis	... 177
Ideal Population	349 <i>seq.</i> , 353 <i>seq.</i>
Indian Poverty (see under Poverty)	... 526
Indian Income Tax Acts	318, 328
Indian Income Tax, assessment of	... 319
Indian Co-operative Ser- vice	505, 506
Indian Economic Asso- ciation	... 453
—, The Objects of	... 454
—, The Committee of	455

	PAGE		PAGE
Inheritance, system of	523	Legislation regarding	
—, Law of, Hindu ...	182	holdings ...	227
Index Number of Wages	39	Madras University, Higher	
Irrigation, in the Punjab	391	Economics Courses ...	93
—, in India ...	569	Mahajan ...	364
Improvement Trusts ...	602	Mann, Harold H. (Dr.)	
Implements of Agriculture	622	66, 150, 456, 466	
Intermediate Examination and Economics	548	Marginal Productivity	32, 33
Jevons H. Stanley,		Marshall, Alfred	94, 243
1, 92, 231, 329, 564		Mathes ...	687
Jiziah ...	308	Mercantilist Ideas ...	509
Kamionti system ...	556	Mobility of labor ...	682
Kane village	199 <i>seq.</i>	Molony, E. A.	158, 520
Kautilya ...	632	Money Market, Indian ...	589
Keatinge, G. F. (Hon'ble)		Morison, Theodore (Sir)	65, 67
180, 522, 525		Mughal Currency ...	169
Keatinge's Bill, criticism		Mundy, Peter	158 <i>seq.</i>
of ...	534	Murrumbidgee Irrigation	
Kist ...	147	Scheme to face p. 266	
Labor Co-partnership in		Natural Monopolies	34 <i>seq.</i>
India ...	502	New M. A. Course	97, 98
Land, Speculation in ...	397	Nicholson Frederick (Sir)	155
Land, causes of the rise *		Non-Officials and Village	
in price ...	395	enquiries ...	475
Land, rise in the price of	392	Oil and Coal in India ...	662
Layton's English Prices	37	Oil Industry in South India	154
Laws of Manu ...	306	Other Activities than	
Lantern, use of in		Economic ...	339
Economics ...	547	Paper Currency Reserve	580 <i>seq.</i>
Lallubhai Samaldas		—, and Co-operation	493
(Hon'ble) ...	695	Pentland Lord, H. E.	65, 155
Land Revenue ...	605	Position of Women ...	85
Lester Ward (Prof.) ...	348	Potential Supply of Labor	
		678, 681	
		Poverty of India (See	
		Indian Poverty) ...	146
		Permanent Settlement ...	146
		Profits of Coinage	172 <i>seq.</i>

	PAGE		PAGE
Prices and Wages in India	11	Silver Parity	... 382
Proceedings of Bombay Conference	... 689	Slater Gilbert	... 115
Psychic Income	53	Social Income	52 <i>seq.</i>
Public Borrowing	... 581	State Aid	... 273
Public Finance (See under Finance)	232 <i>seq.</i>	Subsidiary Industries	... 151
Questionnaire, the Village	68	Survey of Villages	... 68
Railways in India	... 568	Sukracharya	635, 610
Railways in the Punjab	391	<i>Takka</i> or two pie	... 560
Ransome's Plough	... 460	Taxable capacity, defined	241
Recruitment of Labor	... 681	- - -, and Economic Development	... 264
Revenue and Expenditure, Indian	... 573	Three II's	... 510
Reviews of Books	105, 281, 417	Todar Mall, Rajah	... 309
Rig Veda	... 615	Trade Routes	... 9
<i>Sagar</i>	... 559	Types, of Government	252 <i>seq.</i>
Saunders A. J.	... 69	Typical Villages	... 466
<i>Sayar</i> or transit duties	306, 313	United Provinces	... 407
Scheme for survey, ryotwari village	... 72	University Library, Acquisitions	... 147
Secular rise or fall of prices	36	Uppinaputan holdings, map of	193 <i>seq.</i>
Seculum	... 17	<i>Urvara</i> or Ploughland	... 617
Shapes of Coins	... 173	Utilitarian	... 343
Shirgaon holdings, map of	197, 198	Vartta	... 632
Sikka Rupee	... 175	Venkateswara, S. V.	... 169
Silos	... 569	Waste of Water	521
		Water-right	... 271
		Wood fuel in India	... 652

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